ENGINEERING NEWS-RECORD

SEPT. 5, 1957

PRICE 50 CENTS

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Industrial Asphalt

WORLD'S LARGEST PRODUCER OF ASPHALTIC MIX... BUYS 22 STANDARD PLANTS!

INDUSTRIAL ASPHALT—world's leading commercial producer of asphalt paving materials has just added the 22nd Standard Asphalt Plant to its growing company.

Standard Asphalt Plants have been chosen over all other plants because of their tremendous capacity, economical operation, and complete dependability under all conditions.

Mr. E. J. Woodward, Jr.
Chief Engineer of Industrial Asphalt votes Standard Asphalt Plants the most economical in the world.

Model **R-M**

ASPHALT PLANTS

All sizes of STANDARD Asphalt Plants have been utilized by Industrial Asphalt, from the new T.M. Mobile-Mixer (2000 pound batch capacity) through the R·M series of 3000, 4000, 5000 and 6000 pound batch capacities.

All STANDARD Asphalt Plants include oversize dryers, dust collectors, burner units—with heavier transmission, screens, elevators, better alloys, bigger power units, etc. All combining to make a tougher, more efficient asphalt plant.

Write today for complete story, and the address of a Standard plant located near you—see for yourself—Standard makes the best!

STANDARD ASPHALT PLANTS

. . . built to do a better job!

STANDARD STEEL CORPORATION

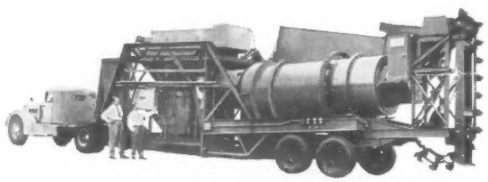
General Offices & Plant, 5093 Boyle Avenue, Los Angeles 58, California

Midwest Offices & Plant **LEADER IRON WORKS** *Decatur 91, Illinois*

(Division of Standard Steel Corporation)

Attention Contractors!

The New *STANDARD* Portable T. M. Plant offers top production. A *complete* self-contained batch type Asphalt Plant . . . on wheels. One man operates! Has exclusive "SELF-LIFT" erecting device. RUGGED – ECONOMICAL – SIMPLE. Mixes up to 60 to 80 tons per hour!



PARTS WAREHOUSES IN LOS ANGELES AND DECATUR, ILLINOIS

"There is no finer engine than MURPHY DIESEL"

If you're looking for dependable power with maximum operating economy, it will pay you to profit by the experience of so many other pit and quarry operators who have found Murphy Diesel to be "the finest engine on the market."

Talk over your requirements for engines, power units or "packaged" generator sets with your Murphy Diesel Dealer. Ask him to show you how trouble-free Murphy Diesels can help you increase profits.

Sterling Sand and Gravel Co.

TELEPHONE HU 6-5591
1600 NORTH TAFT HILL ROAD
FORT COLLINS, COLO.

SPECIFICATION CONCRETE MATERIALS

ASPHALT PAVING

April 23, 1957

Murphy Diesel Company
5317 W. Burnham Street
Milwaukee 14, Wisconsin

Gentlemen:

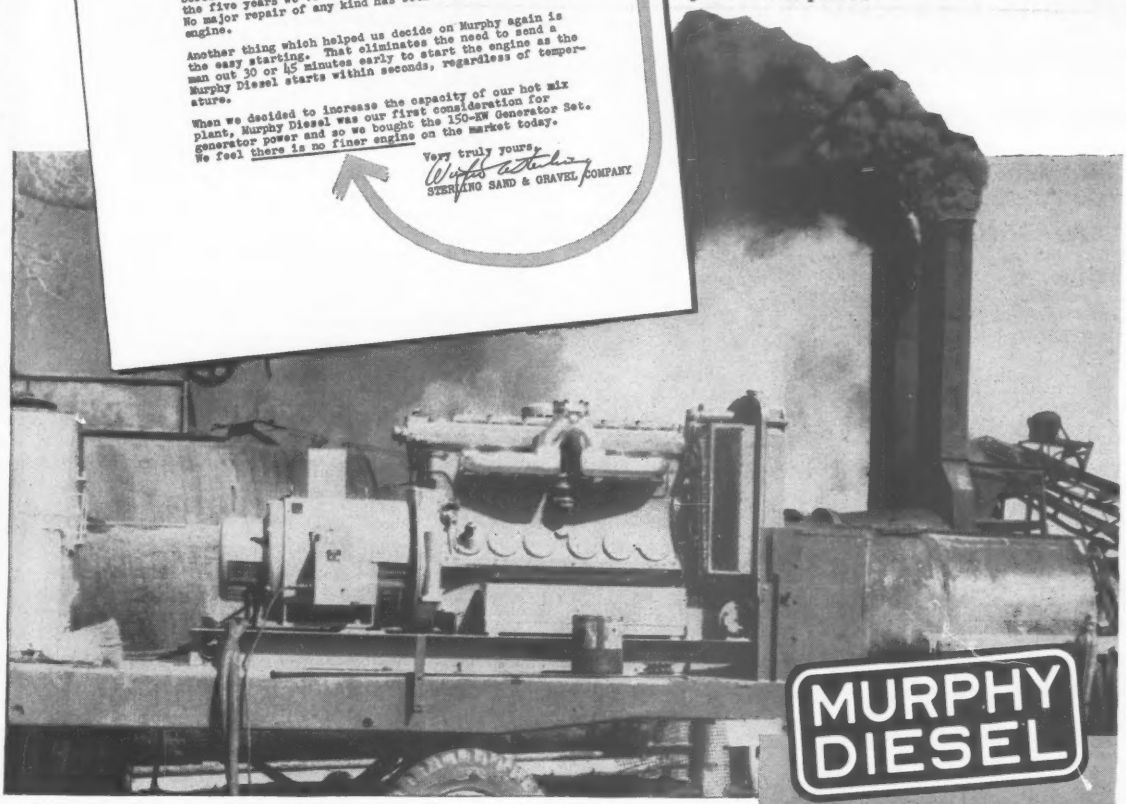
We have recently purchased one of your Model 12½ 150 KW Generator Sets. From our previous experience with the economy and dependability of the Murphy Diesel Model 22-A we've been using for the past five years, we figured we couldn't find a better engine anyplace.

Our old Model 22-A, which is a 100-KW Generator Set, was purchased used in 1952. Hinman Bros. Construction Co., who originally purchased the set, had used it for three years before we bought it. It has given us excellent service in the five years we've used it, with very little maintenance. No major repair of any kind has been necessary on this engine.

Another thing which helped us decide on Murphy again is the easy starting. That eliminates the need to send a man out 30 or 45 minutes early to start the engine as the Murphy Diesel starts within seconds, regardless of temperatures.

When we decided to increase the capacity of our hot mix plant, Murphy Diesel was our first consideration for generator power and so we bought the 150-KW Generator Set. We feel there is no finer engine on the market today.

Very truly yours,
STERLING SAND & GRAVEL COMPANY



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Murphy Diesel engines and power units are available in sizes from 96 to 264 H.P. with engine speeds of 1200 and 1400 rpm. "Packaged" generating units are available with capacities ranging from 64 to 165 K.W.

MURPHY DIESEL COMPANY

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Throughout the Nation

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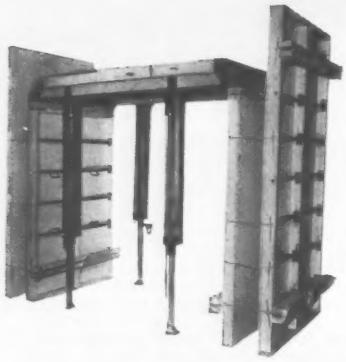

Symons Develops New Haunch Form for Culverts

Symons Safety Shores Used to Support Slab

Symons now has a new 9 x 9 inch steel haunch section designed to connect Symons standard wall panels and slab panels for the monolithic pouring of culverts. This new section provides for a 3-inch face on the roof slab and

on the wall with a 45-degree-angle surface 8½ inches wide between wall and roof. No built-up forms or other special equipment is necessary.

Made of 11-gauge hot rolled steel this new section is available in 4, 6, and 8 foot lengths. It can be used with either metal frame or wood frame forms. Symons regular form hardware is used for securing the steel section to Symons standard forms. No special fittings are required.

Symons forms, shores and column clamps may be rented with purchase option. FREE literature on Symons products is available upon request.

Symons

SYMONS CLAMP & MFG. CO.

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Chicago 39, Illinois

ENGINEERING NEWS-RECORD

EIGHTY-THIRD YEAR OF PUBLICATION

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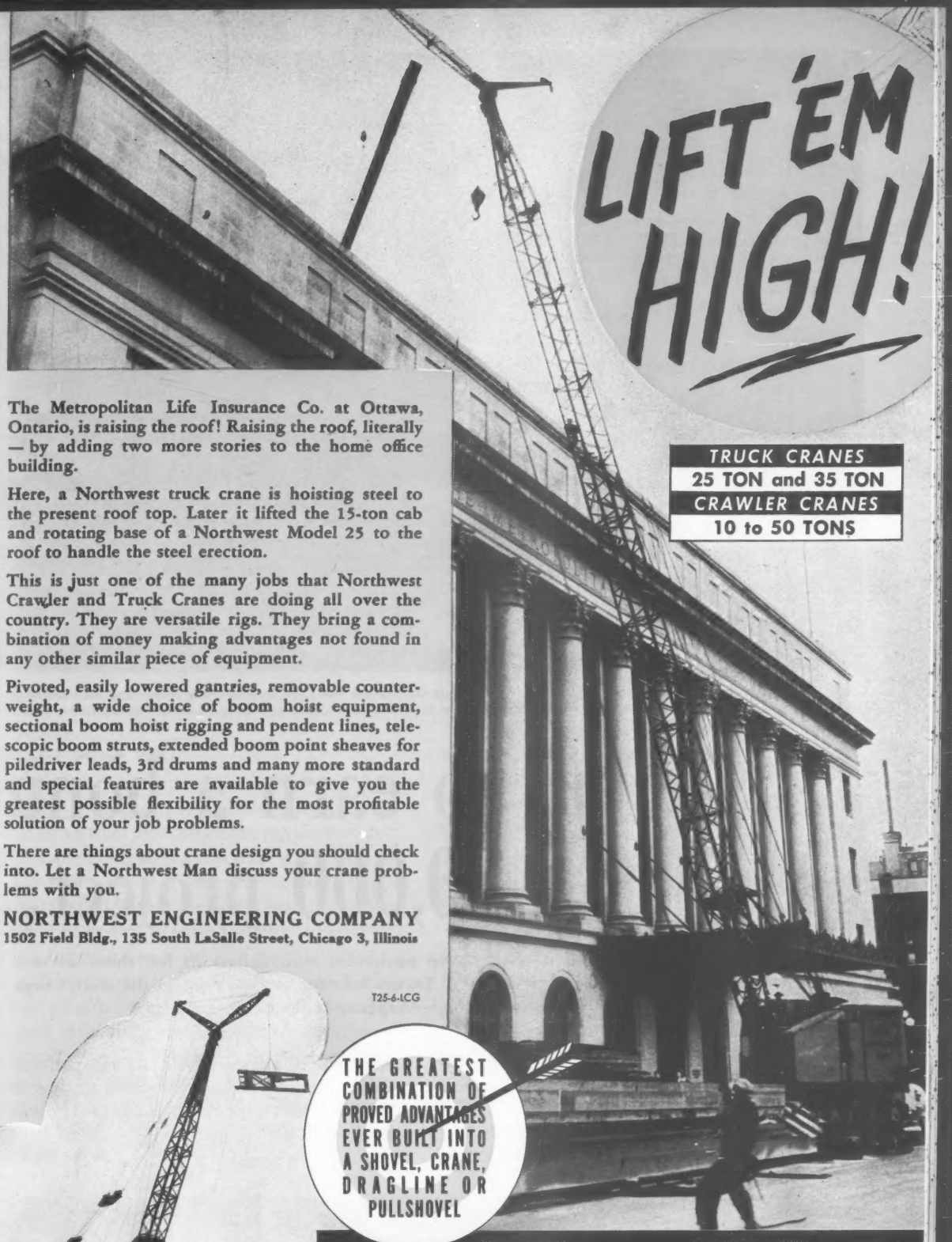


LIFT 'EM HIGH!

TRUCK CRANES
25 TON and 35 TON
CRAWLER CRANES
10 to 50 TONS

The Metropolitan Life Insurance Co. at Ottawa, Ontario, is raising the roof! Raising the roof, literally — by adding two more stories to the home office building.

Here, a Northwest truck crane is hoisting steel to the present roof top. Later it lifted the 15-ton cab and rotating base of a Northwest Model 25 to the roof to handle the steel erection.

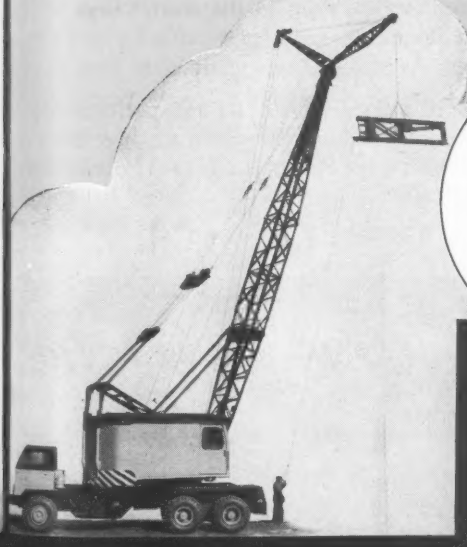
This is just one of the many jobs that Northwest Crawler and Truck Cranes are doing all over the country. They are versatile rigs. They bring a combination of money making advantages not found in any other similar piece of equipment.

Pivoted, easily lowered gantries, removable counterweight, a wide choice of boom hoist equipment, sectional boom hoist rigging and pendent lines, telescopic boom struts, extended boom point sheaves for piledriver leads, 3rd drums and many more standard and special features are available to give you the greatest possible flexibility for the most profitable solution of your job problems.

There are things about crane design you should check into. Let a Northwest Man discuss your crane problems with you.

NORTHWEST ENGINEERING COMPANY
1502 Field Bldg., 135 South LaSalle Street, Chicago 3, Illinois

T25-6-LCG



THE GREATEST COMBINATION OF PROVED ADVANTAGES EVER BUILT INTO A SHOVEL, CRANE, DRAGLINE OR PULLSHOVEL

NORTHWEST

CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVEL

Panoramic photo shows over-all magnitude of the Pittsburgh Disposal Plant Project and the tremendous task force of equipment needed to carry it out. Principal lubricants used are *Texaco Ursa Oil Heavy Duty* for all engine l*Texaco R*

"We're out to earn a bonus on a $100,000,000 project...

"and that means every piece of construction equipment must deliver its full share without down-time. That's why we set up a special Texaco Lubrication Plan right at the start," says *Maintenance Supervisor J. B. Metz of McHugh-Allegheny-Drake Contractors.*

Prior planning has paid off for McHugh-Allegheny-Drake. Maintenance Supervisor Metz reports wonderful results:

"The equipment works in damp, steamy excavations, breathes churning dust, pounds its bearings unmercifully, and still delivers top-rate performance. Down-time is limited to routine maintenance, thanks to the excellent Lube Plan of the Texaco Lubrication Engineer."

KING-S
Since l
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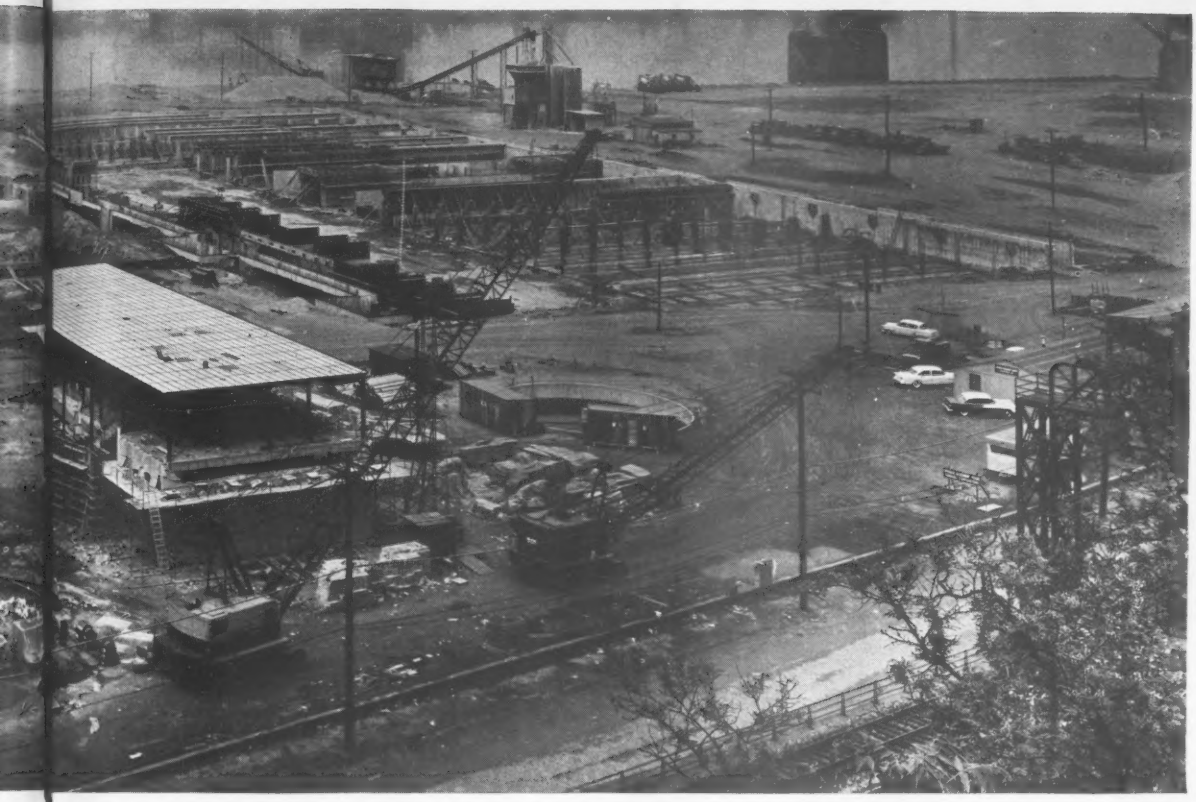


engine lubrication; *Texaco Marfak Heavy Duty 2* for wheel bearings and general grease lubrication; *Texaco Regal Oil R&O* for air compressors; and *Texaco Meropa Lubricant* for transmissions and differentials.

KING-SIZE PUMP WELL . . .

Since last year, the construction equipment of the McHugh-Allegheny-Drake contracting company has been digging what amounts to the biggest ever dug.

The Pumping Station excavation will handle all the sewage to be received in Pittsburgh's new $17,000,000.00 Sewage Treatment Plant. Two more years will be needed to finish the job.

Even before it began the job, the firm asked to "see a Texaco Lubrication Engineer," who helped draw up a Lubrication Plan covering the entire job. Not only manufacturers' lubrication charts were considered. Weather, terrain, work loads, garaging were all weighed together before the proper Lubrication Plan was chosen. The Plan's lubricants are delivered locally from one of Texaco's 2,000 Distributing Plants.

SHOULD *YOU* CALL THE TEXACO LUBRICATION ENGINEER?

Before you do, you might want to know what he does:

1. He surveys your equipment and conditions. (Working conditions are important.)
2. He recommends specialized Texaco lubricants to meet the specific requirements of the job. (His choice may differ from yours—*ask him why!)*
3. He arranges local stocks for the items you'll need, to keep your costs low, your service routine.
4. He watches the progress of your Lubrication Plan, and adjusts it to changing conditions.

HOW CAN YOU GET IN TOUCH WITH HIM?

Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States—or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Lubricants and Fuels

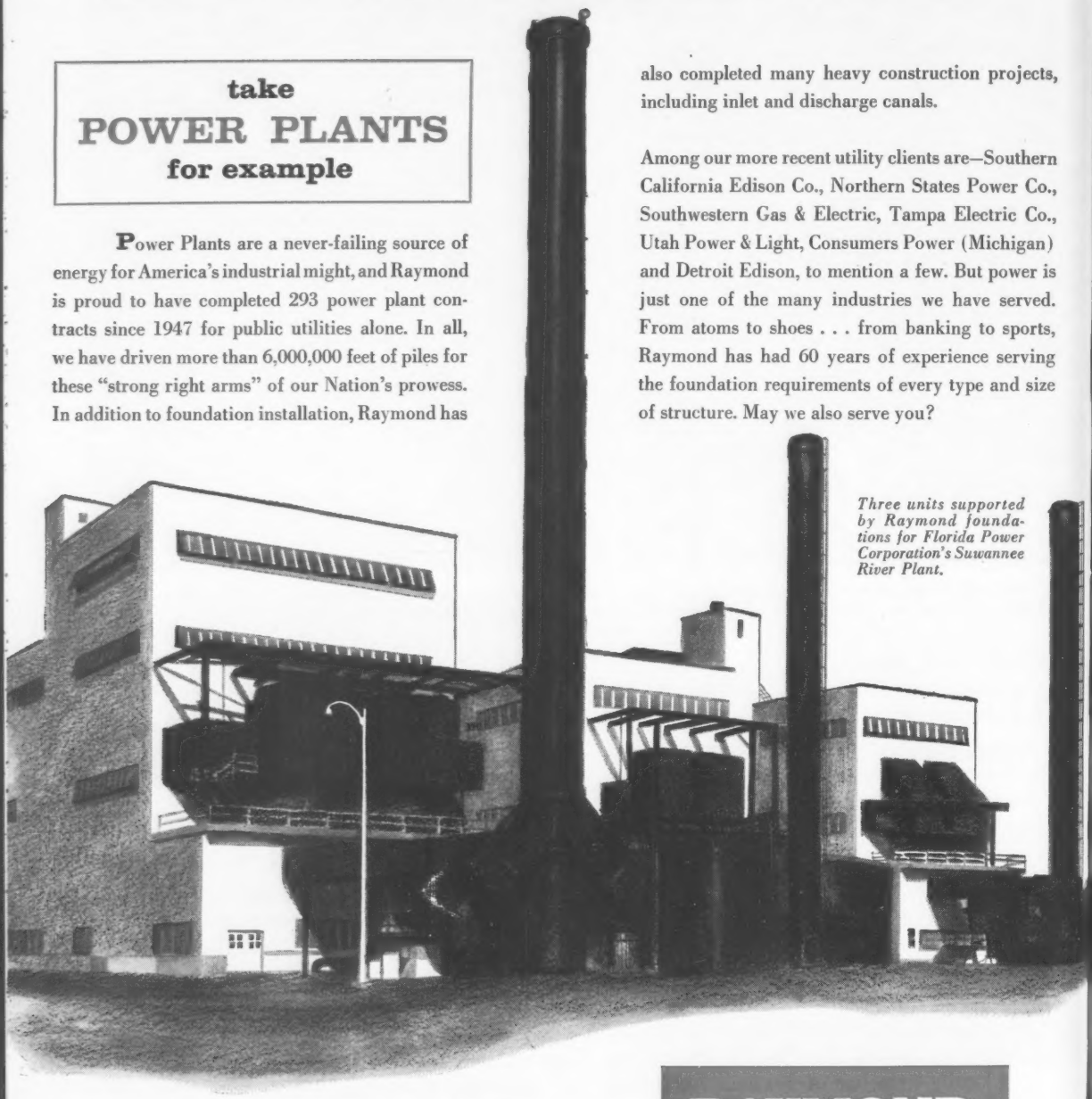
FOR ALL CONTRACTORS' EQUIPMENT

American Industry rests on
RAYMOND FOUNDATIONS

take
POWER PLANTS
for example

Power Plants are a never-failing source of energy for America's industrial might, and Raymond is proud to have completed 293 power plant contracts since 1947 for public utilities alone. In all, we have driven more than 6,000,000 feet of piles for these "strong right arms" of our Nation's prowess. In addition to foundation installation, Raymond has also completed many heavy construction projects, including inlet and discharge canals.

Among our more recent utility clients are—Southern California Edison Co., Northern States Power Co., Southwestern Gas & Electric, Tampa Electric Co., Utah Power & Light, Consumers Power (Michigan) and Detroit Edison, to mention a few. But power is just one of the many industries we have served. From atoms to shoes . . . from banking to sports, Raymond has had 60 years of experience serving the foundation requirements of every type and size of structure. May we also serve you?



Three units supported by Raymond foundations for Florida Power Corporation's Suwannee River Plant.

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OUR 60th YEAR

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Branch Offices in Principal Cities of the United States. Subsidiaries in Canada, Latin America, and other countries.

You are cordially invited to send for our new Highway Brochure, which gives a detailed resume of how Raymond can help you and the National Highway Program. Just write Dpt. E-17, Raymond Concrete Pile Co., 140 Cedar Street, New York, 6, N. Y.

"LARGEST FILL IN OHIO" is how C. F. REPLOGLE Construction Co., Circleville, Ohio, describes the 97-footer on its U.S. Route 40 relocation job. Other cuts and fills run between 80 and 90 feet – and up to 70% of the material is broken limestone and sandstone. This is tough on tires—but Goodyear Triple-Tough 3-T Nylon Cord TUBELESS tires take it even better than tube-type, cut earth-mover tire down time to new LOWS. Tubeless tires shown at work are (left to right) new wide-base Sure-Grip Lug, wide-base Hard Rock Lug and standard All-Weather.

Up to 80% cut in earth-mover tire down time—

plus many other advantages!

Goodyear TUBELESS tires end tube and flap troubles—causes of as much as 80% of earth-mover tire down time. They also end costs of tube replacement and many-item inventories.

You save man-hours, too—for mounting is simple and emergency repairs may often be made *without removing tires at all!*

AND you save tires—for with Goodyear TUBELESS, small injuries usually show *before* they get serious.

Be sure *you* specify *Goodyear* TUBELESS tires on all new equipment—and see the *Goodyear* dealer for change-over of present vehicles. Goodyear, Truck Tire Dept., Akron 16, Ohio.

ON-JOB SERVICE BOON TO CONTRACTORS. Priceless time and valuable tires are saved by this fast and expert service. Strategically located Goodyear shops and field crews are convenient to jobs almost anywhere.

Buy and Specify **GOODYEAR**

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

All-Weather, Road Lug, Sure-Grip—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

Look for this nearby Goodyear dealer sign for better tire values —better tire care.

Now Tubeless or Tube-Type with Triple-Tough 3-T Nylon Cord

ALL-WEATHER EARTHMOVER

HARD ROCK LUG

HARD ROCK RIB

SURE-GRIP LUG

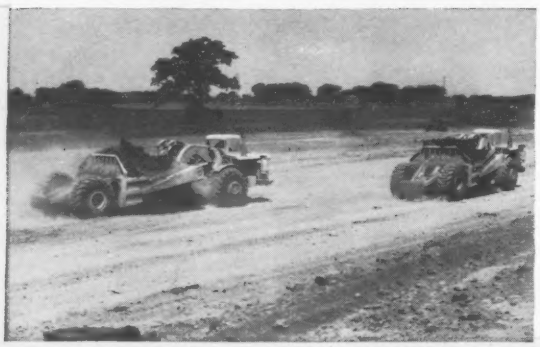
ROAD LUG

S-12 "Eucs" prove their w

Putting two sideboarded S-12's to work in a 10' wide drainage ditch at Freeport, California, A. Teichert & Son moved 400 yds. of good scraper dirt per hour on hauls of 700' to 1000'. Payloads averaged 15 yds.

Among medium size scrapers, the Model S-12 Euclid stands out as a real workhorse . . . on every kind of earthmoving job . . . in every type of scraper material! Power-packed with a 218 h.p. engine, this versatile "Euc" is cutting earthmoving costs to the bone wherever it works. Standard 24.00 x 25 tubeless tires provide plenty of traction and flotation for tough going. Hydraulic levers control scraper operations . . . eliminate downtime and expense caused by cable breakage. The S-12 can turn in only 31 ft. and carries 17 yd. heaped loads at speeds up to 21 mph. Pay-off advantages such as these are reasons why so many contractors say *Euclids are your best investment.*

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio



A fleet of seven S-12 "Eucs" is moving over 400,000 yds. of clay on a 3-mile section of the Illinois Toll Road for Carl Bolander & Sons . . . they recently completed a 750,000 yd. road job in Minneapolis.

At the 600 acre Lawrence Brook Housing Development in New Brunswick, N. J., S-12 maneuverability, easy loading and fast cycle time paid off for Arnolt Bros.

worth in any scraper dirt!

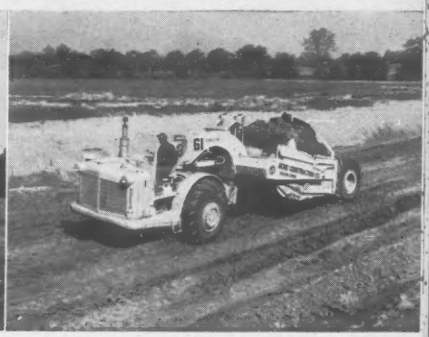
J. H. Hood & Son of Knoxville, Tenn. moved 10,000 yds. of ripped slate per week with two S-12's on 1000' hauls. Jim Hood chose the S-12 as best all-around scraper . . . likes the rigs better every day.

Worthington Construction Co. moved heavy clay and shale on the Route 22 by-pass near Allentown, Pa., with two S-12 Scrapers push-loaded by a "Euc" TC-12 Tractor.

In South Miami, Florida, three S-12's maintained high production on a 400,000 yd. land improvement job for Three Bays Improvement Co.

In tripling long established earthmoving production records, Ben Ginter Const. Co., Ltd. of Vancouver maintained 93% availability with six S-12's in ripped hard pan and rock on a Trans-Canada highway job.

O. J. Hoag made the dirt fly with five S-12 "Eucs" on construction of protective barricades and access roads at Wurtsmith Air Force Base in Michigan.



Acme Construction Co. used S-12 Scrapers in their equipment spread for grading a railroad spur to an industrial site near Twinsburg, Ohio.

S-12 performance has paid off in low cost production for N. A. Degerstrom on the Spokane Freeway, Geiger Air Base and a railroad construction job at Othello, Wash.

Sloan Construction Co. of Greenville, S. C. graded the site for a Piedmont & Northern Railroad warehouse with two Euclid S-12 Scrapers.

On a Florida housing site, Howard Thomas Const. Co. got 14 to 16 yd. heaped loads of sand with three S-12's. Availability of 98% has helped keep jobs ahead of schedule.

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

Waterstop *in place in seconds!*

LABYRINTH WATERSTOP after first pour has been made and form removed. The grooves receive the concrete from the second pour, providing an interlocking joint.

Just a few seconds were needed to nail this LABYRINTH WATERSTOP to the form... just a few seconds and water seepage worries were over before they could ever have a chance to start.

LABYRINTH WATERSTOP forms a waterproof bond between two pours. The corrugated ribs bond firmly with the concrete.

LABYRINTH WATERSTOPS are made of flexible polyvinyl plastic... that has superior weathering qualities, is not affected by temperature changes and chemical activity.

LABYRINTH WATERSTOPS are easy to work with, can be cut to any desired length. "L" and "T" joints can be welded with just a hot knife. Find out now how your costs can be cut... and end your seepage problems. Just mail the coupon to:

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Reader Comment

By Bread Alone?

SIR—Mrs. John C. Gibson's letter, signed wife of an underpaid engineer", appearing in ENR July 18, p. 10, shows some typical examples of skewed thinking amongst professional people and their spouses.

She speaks of real or imagined pressures from social standards that are brought to bear on her family. She says "he must have a better than average home, live in a better than average neighborhood, dress better than his neighbor." Who said so? His car must be better than average, his clothes the same—if we are to continue along this line it could only lead to the poor house.

Does it never occur to this homemaker that he might well spend this hidden cost of being an engineer on dues and initiation fees for some sort of union, guild, society or whatever that will get him an appropriate salary for his training, experience and education. She speaks of dignity. When will professional people come down to earth and realize that you can't put dignity in a sandwich. Unfortunately at least those that I have come in contact with have been brainwashed about this dignity hogwash and so will continue watching that bricklayer neighbor come home wtih more, and from shorter hours too.

Have a dignity sandwich, Brother!

C. C. HARRIS
New Jersey State Highway Dept.

■

SIR—The Girl's Corner (re the profession) was, at first glance, amusing. A little reflection made it disturbing. In fact, it may just be the cause for one less engineer.

At 22, I was intending to return to college now that Uncle Sam has got his pound of flesh. But a little research plus observation has turned out more than just disappointing. Here are some of the things I didn't like.

Pay. While higher at first, the engineer's salary curve tends to flatten out—the opposite of most professions.

Advancement. Security costs—and the engineer pays for his by giving up opportunity. I can't think of any occupation, far less profession, as rigidly price-fixed as are the engineers. (And this is probably the real reason no unions are successful.)

Perhaps this is a transition period and the demand will soon change the picture. However, I can't agree that professional snobbery will help the engineer's wallet as much as his ego.

At this point, I recall my freshman college introduction by the dean. "You are now about to start learning how to be the dullest member of the community. . . . While we engineers can design marvelous public works, something as simple as our own careers is often ignored."

The gals have got something in their comments. Enough to make me hold up my return to school until I'm sure that the "only" profession is what I really want after all. (And again it's the ENR right there with what's important. . . .)

ED FLANAGAN
Oakland, Calif.

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent tion importance. Letters should to subjects of current construcbe addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

BSCE Came First

SIR—I should like to offer a correction to the statement appearing in an article entitled "EE's Offer Their Idea of Professional Unity" in ENR July 18, p. 23, which says "Once upon a time, starting in 1852, there was but one engineering society in the United States, the American Society of Civil Engineers." Actually, there were two societies at that time, the ASCE and the Boston Society of Civil Engineers, the latter having been formed on July 3, 1848, antedating the ASCE by four years. The BSCE is not only the oldest society in the U. S. but is known for the breadth and quality of its activities in practically every field of civil engineering.

W. L. HYLAND
Fay, Spofford & Thorndike, Inc.
Boston, Massachusetts

St. Lawrence Blues

SIR—Your article on St. Lawrence Seaway excavation costs (ENR June 13, p. 31) was of more than passing interest to this engineer on return from a tour of that project. I was a water boy on the Massena Power Canal project at the turn of the century and in 1910 made initial surveys for flowage rights along the Canadian border for the 2 million hp project now under construction.

There is nothing new about the difficult handling of "marine clay" and "glacial till" in that north country. Those materials were a "low bidder's

ACCO for Better Values

American Cable
TRU-LAY VHS® WIRE ROPE
15% STRONGER

Longer life from VHS scraper and dozer cable results in less down-time ...MORE DIRT MOVED

—says Tennessee Contractor

Here's fresh proof that TRU-LAY VHS cable sets new performance records under toughest earth-moving conditions. Mr. M. C. West, road building contractor, Columbia, Tennessee, says: "VHS lines give us twice the service we formerly got from Improved Plow Steel rope. I figure this is due to its 15% extra strength, better abrasive properties and lifetime lubrication.

"Our scrapers are pulled by a Cat D-6 tractor with a similar unit behind as a pusher. These rigs handle everything from wet, sticky material to giant boulders. In spite of the different work loads, one of our men operated a scraper using VHS cable for six months without breaking a line."

A New Grade of Wire Rope

TRU-LAY VHS is a new grade of wire rope, 15% stronger than Improved Plow Steel which has been the top grade up to now. It is also tougher and more resistant to abrasion. It was introduced three years ago and recommended for only the hardest jobs such as scrapers, dozers, draglines, shovel hoists, logging chokers and rotary drilling.

If your work demands a superior grade of rope for any of these uses, get TRU-LAY VHS. If your work doesn't require the extra strength and ruggedness of VHS then get TRU-LAY preformed made of Improved Plow Steel.

Available to You Now

Large warehouse and distributor stocks, backed up by expanded production, assure you of immediate shipment and an uninterrupted supply of VHS. Ask for VHS next time you order.

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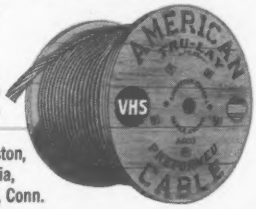

Here's your answer to close bids and high costs:

Multiply your job range....
Divide your rig investment. by

Instead of sinking your capital in an old-fashioned "single-action" loader, let the same money buy four big-capacity International Drott 4-In-1 machine actions!

Instead of allowing profits to dwindle because an ordinary tractor-loader can't do 'dozer, scraper, or clamshell work, change to a 4-In-1! Move the machine-selector lever, right from the comfortable foam rubber seat, and watch your job-getting, profit-building potential go up and up!

You aren't getting just "another bucket"—but famous and exclusive Skid-Shovel® rock-busting, pry-action break-out. And 41° bucket-heaping, ground-level roll-back. It's the one and only true pry-action! That means full hydraulic power transfer—correct pry-lever length—and exclusive frame-mounted skid-shoes to provide the vital fixed fulcrum!

And you're also getting easily-controlled, earth-rolling bulldozer action. Plus "carry-type scraper" action to grade, strip, or spread with inch-close accuracy. Plus super-speedy clamshell action, with bottom-dumping to eliminate the sticky materials problem. Plus the exclusive performance protection of shock-swallowing Hydro-Spring!

Invest only 15 concrete-smashing, earth-rolling, load-gulping, sod-stripping minutes! Prove to yourself that an International Drott 4-In-1 multiplies your job range, and divides your investment, by four! Prove you can't afford to handicap your future with any limited-duty rig—when you can command this versatility unlimited. See your International Drott Distributor for a 4-In-1 demonstration.

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT®

"Our International Drott 4-In-1 is a fine 'dozer—for stripping and pushing rock into the crusher hopper," reports Animas Valley Sand & Gravel Co., Durango, Colorado. "Besides, this machine is a better loader than those used before. And heavy lifting is easy with its clamshell."

Using 4-In-1 "carry-type scraper" action to fill the bucket on the go—a special advantage in depth-controlled grading or recovering and loading layered materials. "No limit to 4-In-1 versatility of operation," reports Stehle Equipment, Inc., Annapolis, Maryland—owner of the TD-14 4-In-1 shown.

...by FOUR
t. by FOUR!

Doubling for dynamite, this 4-In-1 is digging and loading "unshot" sandstone material for binder and fill. Holland and Woodward Stone-Gravel Trucking Co., Decatur, Alabama, reports this material formerly had to be "shot"—before previously-used equipment could handle it!

One-gulp bucket fill of 4-In-1 as a clamshell permits picking up and loading, with ease, old tires, tree stumps, and similar "impossible" materials. Stockpile loading, too, is simplified with this "stand-and-fill" action. And the bottom-dumping clamshell gives a 2½-foot dumping height advantage over ordinary roll-forward buckets.

Equipped with Rock Fork instead of 4-In-1 bucket, this TD-14 is loading rock for rip-rap on a dam near Jacksonville, Texas. Bull-angledozer, wood-handling Skid-Grapples, Grubber Blade, and Bulldozer are other attachments that multiply International Drott usefulness!

How a cost-beating, cy

can "unbind" yo

Flores ar
Internatior
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A TD-24 starts and gets "ready to run," seconds-fast. Morning, noon, or any other time you shut down the TD-24's diesel engine, you restart in seconds—and save yard-moving, wage-costing minutes! Exclusive International gasoline-conversion diesel starting does it—and the combustion-heated engine is ready to run as a diesel, without "gumming the works" with raw fuel!

TD-24 Cerametallic engine clutch eliminates time loss and upkeep cost of temperature-sensitive, "service-nervous" type clutches! You get the simplicity of long-familiar clutch design. You get the operating ease, temperature-immunity, and power-transfer efficiency of International Cerametallic facings. You get the instant readiness to operate perfectly when cold—plus heat-defiance for clutch-mauling jobs like 'round-the-clock shuttle-dozing.

TD-24 on-the-go shifting is a "double-barreled" cycle-speeder. The exclusive TD-24 two-speed planetary system gives instant, stall-preventing Hi-Lo shifting without declutching, in either the Torque-Converter or Gear-Drive models. And in the Gear-Drive model, you get two-direction "no-stop" shifting with exclusive synchromesh transmission.

TD-24 exclusive Planet Power steering eliminates load-limiting "dead-track drag"—gives full-time "live" profit power on both tracks. It's more than total engine hp or weight that

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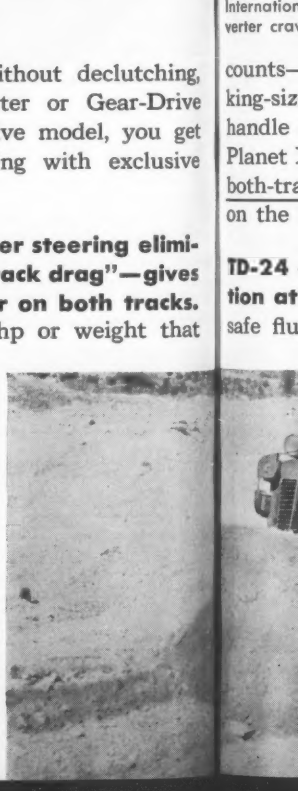


"The TD-24's 2-speed track steering holds you in 'dozing position with no slide-slip or power loss in turning," states Operator Jack Campbell for Owner J. H. Marshall, Clovis, New Mexico. The Marshall TD-24 is shown dozing tough caliche rock for road surfacing.

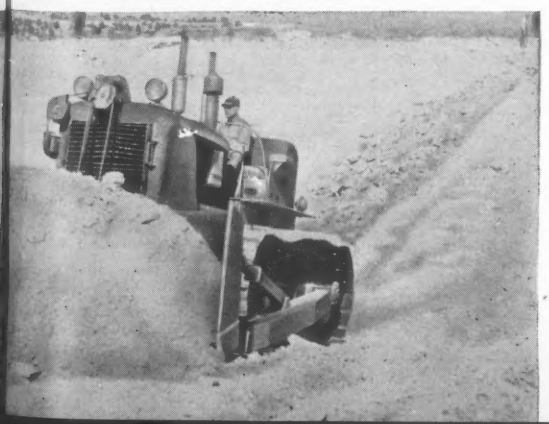
cycle-speeding TD-24 your profit squeeze!

Flores and Perry, Laton, California, depend upon three International "75" Payscraper® units and a TD-24 Torque-Converter crawler—to fulfill their 8-mile grade-raising subcontract, on Central Valley Highway south of Hanford. TD-24 push helps boil-in 20 cu yd heap-loads, in only 42 seconds!

counts—watch how "dead-track drag" limits any king-sized steering-clutch crawler to what it can handle on turns. Then watch how years-proved Planet Power steering gives the TD-24 full-time, both-track power—to pull or push extra-big loads on the turns or straight ahead, uphill or down!

TD-24 control ease puts record daily production at your operator's fingertips. Cool and safe flush-deck design, control-tower vision, and reach-easy fingertip controls all increase operator comfort and performance. Never before has big crawler work-power been so load-responsive—or record work-production so easy to achieve!

Prove positively your profit-margin widens—with geared-and-steered-for-action TD-24 power giving you the success-margin of push or pull! See your International Construction Equipment Distributor for a TD-24 demonstration!



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International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors . . . Self-Propelled Scrapers . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment.

A TALENT FOR INVENTION: Leroy® Lettering Equipment—a K&E development—insures perfect neatness and uniformity, yet it is simple to operate and requires no special skill or training. One man can start a job and another finish it without any variation in lettering.

This K&E equipment comprises three basic, precision engineered parts: Leroy template, Leroy pen and Leroy scriber. Capitals, lower case, numerals, vertical or forward slanting letters can be drawn from a *single* template—an *exclusive* K&E feature. You can buy templates, pens, and scribers separately or in convenient sets.

Leroy templates offer a variety of alphabets, sizes and graphic symbols. Electrical, mathematical, mapping, geological and other symbol templates are available. Templates, with words or phrases that are frequently repeated, as well as templates with your own symbols, trade marks or designs, can be made to your order.

To save time and money in your drafting room specify K&E Leroy® Lettering Equipment. For other drafting or engineering equipment and materials also look to Keuffel & Esser Co.—your "Partners in Creating"—who have served engineering for 90 years.

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nightmare" as far back as 1897 when the Lehigh Construction Co. went broke on the 3 mile Massena power canal, subsequently completed by T. A. Gillespie Co. Recent low bidders on the Seaway would now have more serene slumbers had they assembled and evaluated more facts before getting locked in with the black mare and a red bid, with bitter sub-zero temperatures thrown in for additional discomfort.

ENGINEERING NEWS-RECORD is to be commended for its progressive coverage of the largest current engineering project under construction.

JOHN I. NELSON
San Diego, Calif.

CREOSOTED PILES are 68 years old.

Old Creosoted Piles

SIR—Demolishing of old East River pier No. 3 in the shadow of Brooklyn Bridge at New York to make way for new piers to be built by the Port of New York Authority has revealed a fine example of early pressure creosoted piles. I am informed they were driven in 1889 and are thus 68 years old. Core borings, which I have taken, disclose penetrations of creosote averaging 3 in., and the odor of creosote in these above-water portions of the piles is still evident. I have also seen underwater sections of these piles which show them to be in perfect condition.

RALPH H. MANN
District Engineer, New York
American Wood Preservers Institute

CALENDAR

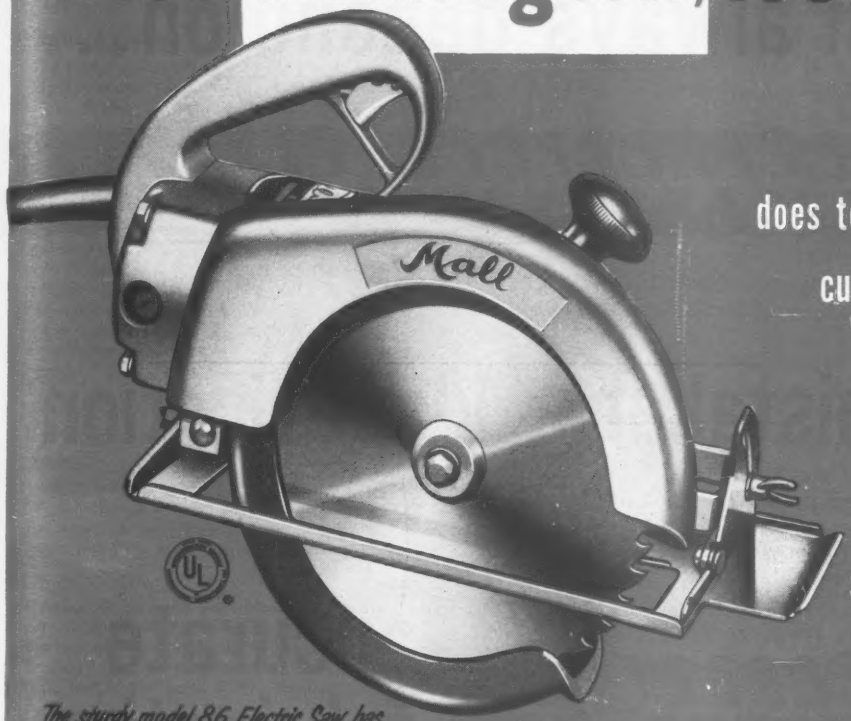
International Conference of Building Officials, annual business meeting, St. Francis Hotel, San Francisco, Calif., Sept. 13-15.

New England Water Works Association, Hotel Statler, Boston, Sept. 16-18.

National Conference on Increasing Highway Engineering Productivity, sponsored by Massachusetts Department of Public Works, Massachusetts Institute of Technology, Association of Highway Officials of the North Atlantic States, American Association of State Highway Officials and Bureau of Public Roads, Somerset Hotel, Boston, Mass., Sept. 17-19.

now, in industrial tools, too,

if it's Remington, it's right!



does toughest cutting jobs easily! gives years of dependable service!

The sturdy model 86 Electric Saw has 5 great features that make it right for you!

- 0" to 2¾" depth capacity!
- 0° to 2¾" bevel cut at 45° angle!
- Ball and needle bearings for longer wear!
- Telescoping blade guard for added safety!
- Parallel mounted motor for two-handed cutting!

Model 86—*equipped with wrench, steel case, 15 foot cord, plug and ground; AC or DC, 25 to 60 cycle; 115 volt or 230 volt models available.*

Specifications subject to change without notice

Remington

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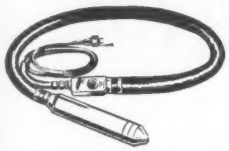
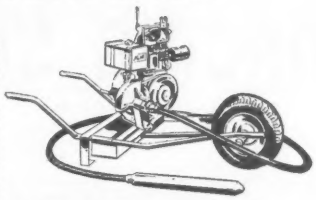
Division of Remington Arms Company, Inc.



Concrete Vibrator, Model EV25. Lightweight, one-man operation. Universal electric motor, 115 volts, AC-DC, 10,000 vpm.



Concrete Vibrator, Model 7GVW21. 5 hp. gasoline engine. Two heavy duty models —7,000 vpm. and 10,000 vpm.

Precision-built for superior performance!

Here's a saw that gives you plenty of handling ease and maneuverability. Yes, now you can have portable electric saws by Remington, the newest name in the power tool field and famous for 141 years for quality in sporting firearms and ammunition.

The Model 86 electric saw was made to zip through construction and remodeling work. It comes complete with 8½" blade, saw dust blower and wing nut adjustment. Try it and observe the superior performance you get from the combination rip-cross blade. It was built to make tough jobs easy—as are *all* of Remington's famous Mall electric saws.

There's an electric saw by Mall Tool Company, Division of Remington Arms Company, Inc., for every kind of cutting job—in farming, industry and construction. For additional information, please fill out the convenient coupon.

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Please send free catalog on Construction Tools.

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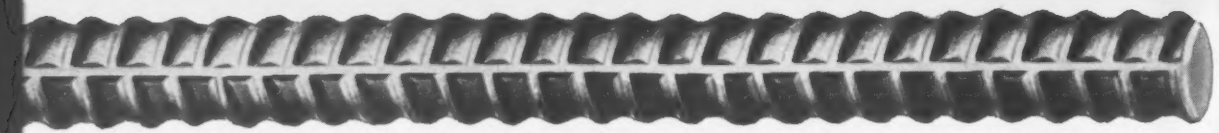
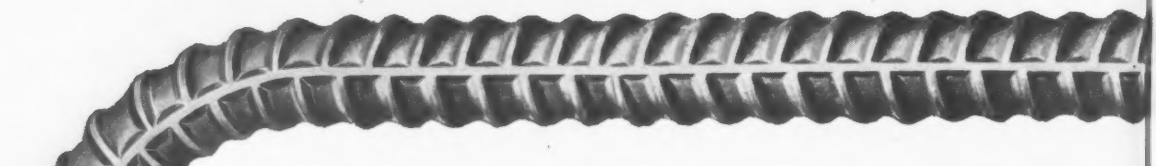


You can always depend on...



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Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Price 50¢ each copy except Annual Cost Issue. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

SYNTHETIC RUBBER ROADS—Salem County, New Jersey, will be using neoprene as a road seal in an experimental effort to reduce hot weather "bleeding" of surface treated roads. Some 8,000 gallons of the synthetic rubber will be donated for the experiment by the du Pont company.

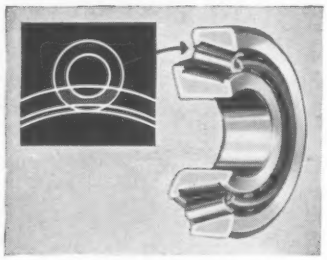
ROCKY REACH DAM BID ACCEPTED—The Chelan Public Utility District of Wenatchee, Wash., has accepted Rocky Reach Dam Builders low bid of $52.4 million on the final-stage general contract for Rocky Reach Dam on the Columbia River (ENR Aug. 1, p. 26). The action followed approval of the bidder's plan for enclosing the entire working area with one cofferdam, instead of in three stages as the PUD's consultant, Stone & Webster Engineering Corp., had specified. The contractor's plan—proved feasible by tests on a scale model—will result in a saving of some 2,000 tons of sheetpiling and a large amount of fill. Rocky Reach Dam Builders is a joint venture of Arundel Corp., L. E. Dixon, Hunkin-Conkey, American Pipe & Construction Co., Guy F. Atkinson Co.

BUT IS IT WORTH IT?—New York City last week published 559 pages of transcript of last spring's acrimonious public hearings on fluoridation (ENR Mar. 14, p. 25). Selling price for the 8½ x 11 in. book: a mere $279.50 per copy (and no discount for quantity purchased). Explained the city's Board of Estimate, a law sets the price of 50 cents a page for this type of publication. Only 150 copies have been printed.

STATE SPECS UNDER STUDY—Smarting over charges that specifications for state construction projects fit only certain materials and thus eliminate use of competitive materials, the Utah State Building Board has approved an investigation of specification writing. Under consideration are proposals for specifying products by trade name, for qualifying competitive products before bids are taken and for establishing a state rating of products.

SNAG AT NIAGARA—The Federal Power Commission announced last Friday it would hold a public hearing on the Niagara power project license request due to objections filed by local governmental units to the covered conduits and open canal that would carry water around Niagara Falls. New York State Power Authority Chairman Robert Moses claimed the hearings would delay the project unnecessarily, said that $105 million extra for deep tunnels was out of the question and rejected FPC's preference of a conditional construction license as no aid to financing.

Harvest time is no time for maintenance!



HIGHER FLANGE IMPROVES ROLLER ALIGNMENT

As shown by the gray area above, the higher flange provides a large two-zone contact area for the roller heads. This greatly reduces wear—practically eliminates "end play". Larger oil groove provides positive lubrication.

No one knows the importance of proper timing better than a farmer. Equipment has to be ready *when it's needed!* One breakdown—like a bearing failure—and everybody loses. Lost crop . . . lost money . . . and, for the equipment manufacturer, a lost customer.

That's why so many farm equipment manufacturers insist on dependable Bower Roller Bearings. Basic design improvements like those shown at left have made bearing failure a rarity. In addition, Bower's use of quality material plus close attention to engineering detail has virtually eliminated all maintenance requirements—makes these rugged bearings last longer, perform better.

Whatever *your* product, specify dependable Bower Roller Bearings. Choose from a complete line of tapered, straight and journal roller bearings for every field of transportation and industry.

BOWER ROLLER BEARING DIVISION
FEDERAL-MOGUL-BOWER BEARINGS, INC. • DETROIT 14, MICHIGAN

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BOWER ROLLER BEARINGS

WASHINGTON OBSERVER

- **The economy bite—How deep?**
- **Reclamation hangs in the balance**
- **Administration water policy overdue**
- **Asphalt-concrete up again**

● **Congress goes home with a lot of work left undone.** (See page 23). The Budget Bureau will be apportioning money voted by Congress, money the Administration decides will be spent during the year. The economy move of Washington will take its real bite when the apportionments are made.

The 10% cut in construction will be looked at again, and the people who feel they can't live with it will have a day in court to plead for an exception. So developments in the next month or so will be important.

● **Construction of military installations will be up for decision**—just how deep the cut in uniformed troops will go or the role of strategic bombers in relation to guided missiles will bear on decisions for building cantonments, air strips and so on.

Housing for service families will be affected, too. The impact of reducing our armed manpower by some 300,000, if we go that deep, will hit at local areas; and if the Administration goes the whole way, the impact will be general as well. Affected areas are already pressuring to be exempt, witness the demand of Colorado Springs officials to keep open Camp Carson, scheduled for closing. Republican National Headquarters reports that the Camp Carson case is being repeated all around.

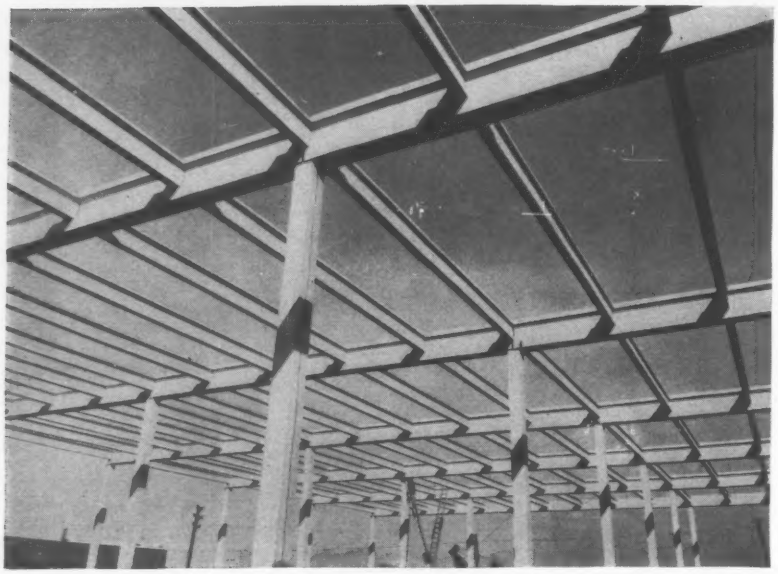
● **Take a look at water policy issues for unsettled questions outside the halls of Congress.**

The future of federal reclamation projects hangs in the balance on a Supreme Court decision when the court returns in October. The case involves the Ivanhoe Irrigation District. A California court decided that federal land limitations under the reclamation law are unconstitutional under the California constitution. Federal officials fear that if the state is upheld, federal reclamation would be dead. Already, one federal contract has been held up.

● **President Eisenhower still is undecided on a long-range water policy.** The White House has been held up because Interior Secretary Seaton was forced to concentrate on minerals subsidy matters and the acute issue of whether the Trinity River project would have its power developed by the federal government or by private interests. **Mr. Seaton is expected to work on water policy** during the Congressional adjournment, on a long-promised plan for legislation.

● **The asphalt-portland cement issue is still alive.** The House Armed Services Subcommittee investigating the situation urges the Air Force to delay new contracts for paving until the Army Engineers complete a new test. The committee, headed by Rep. F. Edward Hebert of Louisiana, also instructs the Air Force to speed up tests on asphaltic concrete for taxiways, as well as runways, at Columbus, Miss. The pavement for Navy strips will also be looked into by the committee.

FRAMEWORK OF THE FUTURE IS GOING UP *Today!*



New "Savarin" Coffee Plant of Slim, Clean Precast Concrete is Functional Beauty

● This bright, light, efficient plant is proof of modern concrete's versatility, speed and economy of erection. The 130 columns, 95 girders and 425 purlins went up in just 7 working weeks.

CHECK THESE CONCRETE FACTS

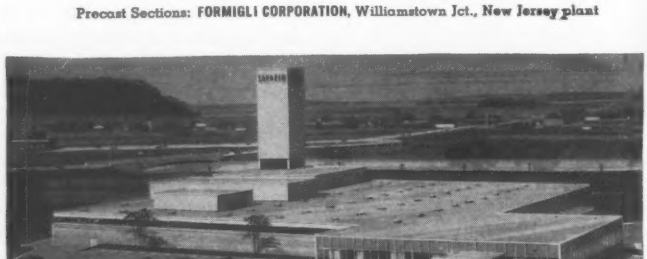
Here's what architect and owner want in a new building. Here's what precast and prestressed concrete gives them:

- a maintenance-free, corrosion-free structure
- elimination of fire hazard, hence favorable insurance rates
- streamline, smooth surfaces easy to keep clean, new-looking and sanitary
- flexibility for expansion through variety of shapes, sizes and weights made-to-order at no premium cost
- economy through speedy erection in days or weeks, from on-job or off-job casting plants
- immediate availability of units, produced as needed
- quicker starts, earlier finishes by using 'Incor' high early strength cement, in assembly line production through fast stripping and re-use of forms

Dependable 'Incor'*, America's first high early strength cement, is a major reason why precast, prestressed buildings such as this are the Framework of the Future rising everywhere *Today*.

*Reg. U.S. Pat. Off.

Architects: **POMERANCE & BREINES**, New York City
Structural Engineer: **HARWOOD & GOULD**, New York City
General Contractor: **WALTER KIDDE CONSTRUCTION COMPANY**, New York City
Precast Sections: **FORMIGLI CORPORATION**, Williamstown Jct., **New Jersey plant**



LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD

LONE STAR CEMENT CORPORATION

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LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 21 MODERN MILLS, 47,900,000 BARRELS ANNUAL CAPACITY

Washington—

Congress is packing its bags, getting ready to go home after wrestling with the problem of voters who wanted more federal aid—but a smaller budget. For construction, the big question is . . .

What Did Congress Accomplish?

Conflicting economy forces pulled Congress two ways on public works this year. But the tug-of-war ended with the House and Senate standing close to their original position on funds for civil works. Only military construction was deeply slashed.

President Eisenhower's big spending budget of last January precipitated a pulling-and-hauling contest over Congressional appropriations. Adding to the confusion, the President gave only faltering support to his budget requests —and even expressed a wish that Congress would find ways to cut his estimate. His decision opened the gates for a tidal wave of economy pleas to congressmen from the voters back home.

Continuing White House uncertainty and vacillation over what could be done to cut the $71.8 billion spending budget gave no help to Congress. In fact, Administration second-guesses on retrenchment cut the ground from under Congressional leaders who were fighting to hold the line for President Eisenhower.

Particularly on military construction and overall defense expenditures the White House pulled the rug from under Democratic and Republican spokesmen who were holding firmly for the budget figures they had accepted as minimum requirements for national security. After this letdown, the Democratic-controlled Congress set out in earnest to do the Administration one better in establishing an economy record. Deep cuts were made in many of the money bills, but civil works programs escaped anything more severe than token reductions.

On the vital question of money for construction, opposing forces swayed congressmen. From one side, they were deluged by a flood of economy mail originating in their home districts. Resisting this pressure was a grassroots demand for the same sources that no local project be cut.

Congress was caught in the middle. And in the end it held to middle ground by appropriating sufficient funds to continue federal and federally aided public works at the going rate—except for military construction.

Economy influences played a part in Congressional decisions on other matters. Economy was a factor in killing off appropriations to start the federal flood insurance program, and it contributed to postponement of the authorization and starting money for the $160 million Fryingpan-Arkansas transmountain diversion project, requested by the President for the second time.

But economy had nothing to do with the decision to hold over until next year the $1.4 billion omnibus bill to authorize new Army Engineer and Reclamation projects. The measure faced a Presidential veto (its fate last year) so the House delayed until next year.

In certain categories of public works construction, Congress did some delicate slicing to trim appropriations slightly below budget requests. In these cases, almost without exception, Congress transferred or utilized unspent carryover funds previously appropriated to assure no slowdown of construction this fiscal year.

Programs that took these token cuts include the civil works of the Corps of Engineers and the Bureau of Recla-

The Lost Bills

In the adjournment scramble many minor bills get shoved through without attracting much attention. Others get pushed aside. If you have questions about some measure of special importance to your company or business, ENGINEERING NEWS-RECORD will make a check and report to you. Address inquiries to ENGINEERING NEWS-RECORD, 1189 National Press Building, Washington 4, D. C.

mation, pollution abatement and airports.

Other important construction areas got more help from Congress than the Administration asked for or intended to give. As the prime example, Congress passed what some thought would be the most liberal housing bill since the Federal Housing Administration was established by the original act of 1933.

The President's $5 billion proposal for a four-year program of federal aid to school construction went down to defeat in a surprisingly close House vote. This loss might be called the only construction setback of the year, except for the fact that the program had been conceded practically no chance to pass, because of the integration-segregation fight.

Money to construct federal buildings also is going to be an issue next year. Congress this year wrote finis to the government's attempt at getting needed structures built with private capital under lease-purchase agreements.

Awaiting action is a House Public Works Committee bill to authorize direct appropriation of $0.5 billion for construction of these federal buildings. First need will be for money to finance construction of 148 buildings already approved under the lease-purchase program. Total estimated cost is well over $700 million. By the time Congress comes back in January, plans and specifications will be complete for 30 or 40 projects costing close to $100 million.

Highway legislation, too, will generate extended debate next year. At the core of the argument will be a new federal-aid authorization for the primary, secondary and urban systems. Congress is expected to vote more 50-50 aid for these roads than the $875 million they are getting for fiscal 1959, the final year of the current two-year authorization.

Congress also will be debating increased costs for the interstate system and possible reimbursement to the states for the 2,100 miles of toll roads recently incorporated into the system. On Jan. 12, the Bureau of Public Roads is scheduled to report to Congress on (1) revised cost estimates for the 40,000 interstate miles being constructed under terms of the 1956 highway act, and (2) the current, depreciated physical value of the toll road sections, plus possible methods Congress might use in reimbursing the states for these sections if it elects to make them toll-free.

The omnibus rivers and harbors legislation, passed by the Senate but held up in the House, will be considered.

Public works appropriations will be big, as well, to back up projects authorized.

The Record of the 85th Congress

Lease purchase—Congress let the three-year-old program, which already was in serious trouble, expire. The Administration tried to breathe new life into it; but after the Senate approved legislation to extend, the House demurred. Instead, new steam is behind a return to building from general revenues.

Highways—Efforts to extend the 41,000 mile interstate system by from 6,000 to 7,000 miles were stopped, and because of rising cost estimates for the 90-10 federal aid program, there are doubts anything will be done next year. Partly blocked was a measure to use highway trust fund revenues to pay for administration of Davis-Bacon prevailing wage provisions for interstate construction.

Housing—Lower downpayments were voted for Federal Housing Administration guaranteed mortgages at a time when the industry was in its most serious slump since World War II. Congress did refuse to raise GI housing interest rates, but contributed to the demise of World War II VA housing programs by voting to let the law expire next July.

Urban renewal—The hard-pressed program got an additional $350 million in federal grants, perhaps enough to get projects into brick and mortar.

Labor—Again, Congress declined to act on general amendments to the Taft-Hartley law, as well as specific building trades provisions permitting union membership requirement after seven days of employment; and liberalizing secondary boycott provisions. The investigation of top officials of the teamsters union by the McClellan rackets committee dominated the session.

Taxes—The 52% rate on corporate income was extended, and legislation aimed at individual tax reduction and changes in depreciation rules held over until next year.

Water resources—In voting money for public works, Congress specified individual allocations of funds to start 40 new projects and continue 200 going jobs. Enactment of an omnibus bill to authorize additional rivers and harbors, flood control and reclamation projects was held over until the next session. The House interior committee killed a Senate-passed bill to authorize a federal high dam for Hells Canyon, but the two houses got together on enactment of legislation authorizing New York State to build the power plant on the U. S. side of Niagara Falls.

Military construction—Authorization and money bills for military construction were cut. After the Defense Dept. had made two slashes in original budget estimates, Congress went a step farther to cut appropriations to $1.5 billion and authorizations to $1.2 billion, a 30% cut.

School construction—The House killed the President's four-year program of federally aided school construction. Congress continued government grants for building classrooms in areas snowed under by the influx of people for new or expanded federal establishments.

Pollution abatement—Making allowance for carryover funds, appropriations are sufficient to finance federal grants to local treatment plant and sewerage construction projects during current year despite a 10% cut below the figure authorized under the 10 year program.

Bid shopping—A revised bill to require naming of major subcontractors in bid proposals for federal building jobs won House approval but ran into a delay in the Senate, where it is hung up pending settlement of a disagreement among the specialty contractors on minor features of the legislation.

More money for engineers—A pocket veto by President Eisenhower is predicted for last-minute Congressional action approving an 11% pay raise, with a $1,000 limit on any individual increase, for the government's civil service employees, including some 10,000 engineers and scientists.

Atomic energy—AEC appropriations bill provides $2.3 billion for the total program for fiscal 1958 and includes $130 million for power reactor projects under partnership agreements between AEC and individual groups, $10 million for three medium to large reactors by AEC, and $30 million for assistance on anticipated power reactor proposals in the next 12 months. Atomic insurance provides that the federal government will insure all licensed atomic reactor projects up to $500 million against liability claims.

Right-of-Way Takes the State Spotlight

Who pays for utilities relocation is the big question as legislatures wind up right-of-way deliberations

As predicted by almost every observer, the problem of right-of-way proved to be the knottiest one facing state legislatures as they strove to put their state roads in line with the requirements of the Interstate Highway Act. But one phase of problem popped into unexpected prominence—the question of who pays for relocation of utilities that must be moved because of new road work.

A check by ENR correspondents on the 44 state legislatures that have been meeting this year indicates no real battles in the capitols on such matters as raising additional revenues to pay for the state share of the highway costs.

But some idea of the other problems can be gained from the fact that a total of 15 legislatures approved—after considerable debate—measures that would have the state reimburse utility companies (and publicly owned utilities) for the costs of moving their pipelines, wires or pole-lines out of the way of new highway construction.

Of the 15 measures passed, six have been vetoed by governors of Colorado, Kansas, New York, Pennsylvania, Rhode Island and Wyoming; one, in Tennessee, is now under court attack, and one, in Utah, has been under a cloud by the state's attorney general who advised that nothing be done under the statute until it is tested in court.

Basic ground for the vetoes, incidentally, was the argument that repayment to the utilities would be an unwarranted use of public funds since most of the utility lines were placed into—or over—the roads at no cost to the utility companies for right-of-way.

On general questions of right-of-way acquisition, two states were in some trouble with federal authorities over acquisition procedures, another was very much annoyed with charges that it is spending too much and several others were uneasy about the whole problem.

One of the states in trouble was Florida. There the Bureau of Public Roads has launched an investigation of right-of-way buying methods.

According to official statements, BPR doesn't like Florida's laws which:

Provide that the state pay attorneys for landowners who contest awards;

Don't permit possible enhancement of remaining property to be offset against cost of land taken;

Set up the acquisition in such a way that no single person is responsible for right-of-way.

In Kentucky, BPR recommended that state-paid agents act as purchasers for highway right-of-way rather than following the long-standing practice of calling in local real estate dealers to act for the state—at a fee. BPR contends that costs for the private agents are too high, but local officials argued that professional buyers actually save the state money because of their greater knowledge of land values.

And in Ohio, Charles M. Noble, the state's highway chief, fired off a blast at BPR for a cost comparison chart that seemed to show that Ohio was paying twice as much for its roads as the national average. Said Mr. Noble: The comparison is unfair, Ohio shouldn't be matched with many middle-western and western states, which have small populations, open terrain and little urbanization. Fairer comparison would be with big eastern states like New York, New Jersey and Pennsylvania.

• **No problem on money**—There has been little real trouble in the states in providing for added revenues to match federal highway funds.

Nine states, so far (Indiana, Nebraska, New Hampshire, South Dakota, Utah, Vermont, Oklahoma, Connecticut and Tennessee) have upped gasoline taxes; five others (Maine, North Dakota, Texas, Vermont and Wyoming) raised registration fees and other user taxes. Only three—Montana, Pennsylvania and California—lowered the gasoline tax. California's drop, incidentally, was in taxes on trucks only.

At the same time other states (including Colorado, Delaware, Michigan, Minnesota, Oregon, Tennessee, Washington) approved legislation for issuance of bonds to cover their share of the highway costs.

And Maryland's legislators voted to establish a $10 million revolving fund for purchase of right-of-way. Maryland would thus become the third state—with New York and California—to possess such a fund.

On the tax fund, however, some states were finding paradoxes. Rhode Island, for instance, found that although it has more automobiles registered than ever before, its revenues from licenses, gasoline taxes and other fees are falling below budget estimates. One explanation offered is that since no part of Rhode Island is very far from the state line, residents may be buying their gasoline at stations out of the state.

And in Alabama, the highway department released—with some qualms—tentative plans for roads through the state's three largest cities. Highway Director Herman Nelson hastened to caution property owners along the routes to "take it easy," commenting that all plans are tentative and may be revised.

• **Other problems**—Taking one of the first moves of its kind, North Carolina, meanwhile approved a secondary-road plan to set up priorities for secondary road paving and maintenance, systems of apportioning money for this purpose and construction and maintenance standards.

California reported its highway contract letting slowing down drastically. Nothing to be alarmed about, said Public Works Director Frank B. Durkee, but the state is running out of money.

Under recent laws, the state has been authorized to let contracts six months in advance of the start of the fiscal year. A number of really big contracts let on that basis went out faster than expected. The result: More progress payments were due than had been anticipated.

Water Supply Engineer Irving Huie Dies at 67

Irving Van Arnam Huie, engineer-president of New York City's Board of Water Supply, died Aug. 30 at his home after a long illness. He was 67 years old.

Mr. Huie headed the big engineering-construction agency since 1945, during which time it commissioned Stage 1 of the Delaware Project (Rondout Reservoir and 85 mi Delaware Aqueduct), built Stage 2 (Neversink and Prepaction Reservoirs and 26 mi. of tunnel to Rondout), and started Stage 3 (Cannonsville Reservoir and 44 mi of tunnel to Rondout).

Prior to assuming lifetime BWS post, Mr. Huie was Commissioner of New York City's Department of Public Works from 1938 to 1945; in private engineering practice between 1920 and 1938; Deputy Commissioner of Highways for New York State in 1918-19 and a major in the Army Engineers during World War I.

A native New Yorker, Mr. Huie received a civil engineering degree from New York University in 1911. He was a director of the American Society of Civil Engineers in 1946-48.

Crack-Down on Contractors

Milwaukee orders "get-tough" policy on contractors who fail to meet completion schedules on street paving jobs

The City of Milwaukee has ordered a "get tough" policy for contractors who are not meeting deadlines on street repaving.

Walter P. Schmitz, engineer in charge of the construction division, sent warning letters to contractors who have not reopened streets on dates specified in their contracts. He also has started a file of habitually slow contractors and is preparing a "reasonable" scale of damages to be imposed when work lags beyond a completion date.

A recommendation was made to the commissioner of public works that contracts be withheld from firms that disregard completion dates.

Mr. Schmitz said a study of work done by underground utility contractors last year revealed that 5% of them were responsible for about 90% of the uncompleted contracts, and he added that the repaving situation is probably similar. Often, he declared, there are things that hold up a paving job, such as inability to get concrete, but this year several jobs have been delayed for no apparent reason.

Mr. Schmitz said the present penalty for delay is 0.5% of the contract amount per day, but the charges never have been enforced during the 10 years he has been with the city. But he believes the amount is too high and the city would have difficulty proving damages to that extent.

Therefore, the schedule he is preparing would impose a penalty of $6 per hour or $48 per day, regardless of the size of the job. He feels it would be high enough to discourage unnecessary delays by contractors.

He also declared that he hopes to obtain contractual clauses requiring contractors to pay for city inspection cost in contracts for 1958 work. His study revealed that the city's inspection costs range from 2.5% to 18.6% of the contract amount.

In another tightening move, the Milwaukee Common Council this year ordered the commissioner of public works to refuse to accept bids from contractors who previously have failed to fulfill contract agreements with the city.

Private Firm Will Build Providence Parking Deck

A 175 car parking deck will be built soon over one of the busiest streets in downtown Providence, under an arrangement between the city and a private parking lot operator.

Hard pressed for downtown parking space, the city recently leased ground and aerial rights to Providence Parking Co. to build the deck over Francis St. opposite the railroad station, which also is built over the street.

Expected to cost more than $350,000, the facility will be operated by Providence Parking for 25 years, then the title will revert to the city. The steel and concrete 35,000 sq ft decking, 14 ft above street level, will be built by M. A. Gammino Construction Co., Providence. Because of the location in the heart of the city, Providence Parking agreed to spare no expense in enhancing the appearance of the deck with evergreens and polished granite supporting columns.

The facility is expected to gross about $150,000 a year. Of this, Providence Parking will pay the city percentages ranging from 8% of gross receipts up to $60,000 to 52% of gross receipts over $150,000.

Charges Sub-Professional Supervises Roadbuilding

In an unusual action, an employee of the Ohio State Highway Department has been charged with unauthorized practice of engineering.

The charge was brought in local courts by D. M. Ryan, of St. Clairsville, who until recently was a training engineer with the highway department.

Mr. Ryan charged that Elmore Woodside, a 24-year-old highway department worker, has been acting as a project engineer on a new section of U. S. Route 224. According to Mr. Ryan, Mr. Woodside is not an engineer and has only a high school education. The engineer said he launched the "test case" in an effort to require state projects to be under the supervision of professional engineers.

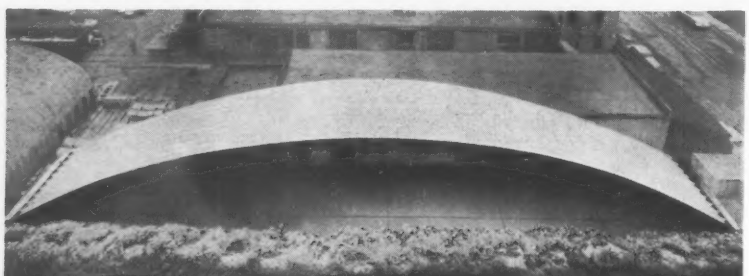
Replying, W. D. Moulton, District Four Chief Engineer, said that in every case where an "on-the-job" supervisor is not a professional engineer he is subject to constant supervision by a professional engineer in charge for the county in which the work lies. He added that the central office also has a licensed engineer in contact with these jobs.

TV Film Series to Tell The Construction Story

The construction industry will star in a series of documentary films to be telecast throughout the U. S. beginning this fall. "Building America" will be the title of the programs.

The purpose of the films, according to the sponsor, the Producers' Council, is to make both the building industry and the general public more aware of the role of construction in the U. S. economy. More than 200 television stations across the nation will carry the films to an estimated weekly audience of 7.5 million.

Each half-hour program will include four 5 minute documentaries and a 3 minute editorial or interview presenting construction industry news. Government policies and actions affecting the industry will be discussed with Ad-



Light Steel Roof Spans 150 Ft in Test

Without benefit of ribs, trusses or other supporting skeleton work, light-gage steel sections arch 150 ft clear to form the vaulted roof shown above. The structure is a full-scale test model erected by the Wonder Building Corp. of America at the firm's Chicago plant.

Reportedly the longest span ever constructed of light-gage steel without a framework, the building is made up of 2x10 ft sections of 14 ga steel, bolted together to form self-supporting arches. Height at the center is 19½ ft. The structure has been added to the line of packaged steel buildings manufactured by Wonder. It will stand 120 mph winds and 32 psf loads, the makers claim.

ministration and Congressional leaders.

Members of the Producers' Council, which includes about 200 manufacturers and associations in the building-materials and equipment fields, will bear the cost of producing and distributing the films. Actual production and distribution will be handled by the Public Service Network, Princeton, N. J.

Tube Pictures

Television traffic control planned for Pittsburgh's Ft. Pitt vehicular tunnel

Television will be used to avoid long delays from vehicular breakdowns in the multi-million dollar, twin-tube Fort Pitt Tunnel now under construction in Pittsburgh (ENR, July 11, p. 64) if tests show it to be practical. Breakdowns would be spotted by the closed circuit television system, permitting towing equipment to be dispatched immediately.

This installation would be the first of its type in a tunnel constructed with federal participation. A similar closed circuit TV setup was tested at Pittsburgh's Squirrel Hill Tunnel recently. Excellent results were achieved.

The Fort Pitt system will consist of eight cameras—four in each tube. The cameras will face the traffic flow and will be equipped with telephoto lenses. Approximately 900 ft will be covered by each camera—so that all vehicles will be visible for the full 3,600 ft length of the tunnel.

Each camera will transmit to a 14 in. screen receiver in the control room located in the south ventilation building. The eight monitors will be mounted vertically in fours, on each side of the control board.

A key element in the setup is the fluorescent illumination system, which will consist of a continuous row of tubes beneath the ceiling and beside the walls. To allow the vision of motorists to adjust to tunnel lights without momentary blindness there will be two lighting zones in each tunnel:

One will be an intensive zone and extend from the entrance to about midpoint. The other zone will be of normal lighting, which will also permit television cameras to pick up and transmit clear, sharp pictures.

Fort Pitt Tunnel is part of the Penn-Lincoln Parkway that will eventually carry US Routes 22 and 30 traffic through Pittsburgh as a portion of the federal interstate highway system. The parkway, tunnel and a two-level bridge will be toll free.

Construction of the tunnel was begun in April with an award of a $10 million contract to Merritt-Chapman & Scott Corp.

Railroad Spur Rock Cut Adds Up to 800,000 cu yd

The building of a new spur involving the largest single track cut ever constructed on its lines was announced this week by the Baltimore & Ohio Railroad.

The spur, approximately four miles long, will leave the B&O Monongah Division's main line at Mannington, W. Va., and the right-of-way will carry it up Dents Run.

The construction will take place under an agreement between the railroad and Simpson Coal & Chemical Corp. to serve its new coal mining developments. It is expected to be completed in November 1958.

The huge cut, with a maximum depth of 155 ft, will be made immediately after the spur leaves the main line. It will require removal of 626,000 cu yd of the total of 820,000 cu yd of material that will be graded as part of the job. Studies made by the railroad's engineering department indicated that the cut would be cheaper than a tunnel.

Permit Asked for Last Damsite on the Columbia

A proposal to build a $150 million hydroelectric project on the last unspoken for open stretch of the Columbia River (in the U. S.) was announced by Benton Public Utility District Manager Owen Hurd. The site is 8 miles north of Richland, Wash., between McNary and Priest Rapids Dams.

The only other unapproved site is Wells, Below Chief Joseph Dam, for which the Federal Power Commission has recently received a construction license request.

Mr. Hurd said an application for a preliminary study permit has been filed with FPC. Sixteen other PUDs in Washington have been invited to join in the project.

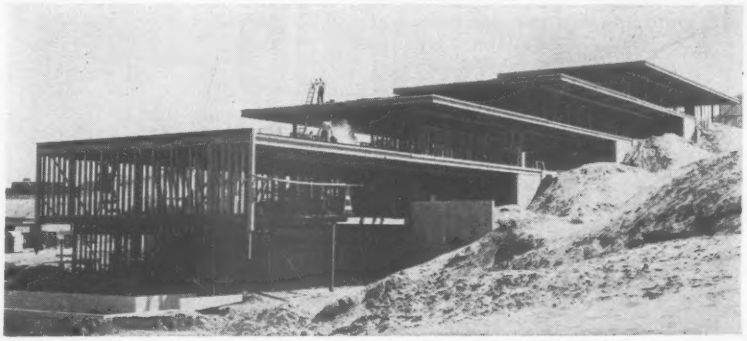
The project, which may be called Ben Franklin Dam, would take about 24 months to build and would have a capability of 450,000 kw at a head of 55 ft. Reservoir of the proposed dam would extend through the Hanford Atomic Energy Reservation, which maintains a production area on one side of the river and a control zone on the other side.

R. I. Wants Recognition On Massachusetts Pike

Rhode Island may be the "smallest of the 48", but it still deserves directional representation on the new, cross-state turnpike built by its neighboring state, Massachusetts.

That is the gist of a letter sent to the Massachusetts Turnpike Authority by Joseph M. Vallone, Rhode Island public works director.

On a recent drive along the turnpike, he wrote, he did not see one sign telling motorists where to get off if they want to visit Rhode Island. He suggested this lack could be made up by signs at the Auburn exit near Worcester.



Schoolhouse Scales a Sandy Hillside

Five levels of classrooms range up the side of a hill, giving a Manhattan Beach, Calif., schoolhouse the look of a king-size stairway.

Rooftops in the $411,000 project will augment the 12 classrooms by serving as outdoor teaching areas. Eventually each level will have its own playground terrace.

Floors are framed with steel beams and wood joists. Walls are framed with wood studs, except crosswalls on the uphill side at each level. These are reinforced concrete, doing extra duty as retaining walls.

A second phase soon to be bid will add four more classrooms, a multipurpose building, two kindergartens and extensive site development and landscaping.

The project was designed by Daniel, Mann, Johnson & Mendenhall, Los Angeles architects-engineers. Bill Smith & Co. is the contractor.

Bridge at Memphis

Agreement boosts hopes for new Mississippi span

A plan leading to the construction of a new $35 million Mississippi River bridge at Memphis, Tenn., possibly within the next five years, has been agreed to by Tennessee and Arkansas highway representatives and city officials.

Considering a bridge site survey by the engineering firm of Modjeski & Masters, the group envisioned expenditure of about $3 million of interstate highway funds for stabilization of the Mississippi River channel. City Engineer Will Fowler said that this proposal, if approved by the Corps of Engineers and the Bureau of Public Roads, would clear the way for a crossing.

Approval of a location was recently deferred by the Corps pending stabilization of the main channel at Memphis closer to the Tennessee side. This project, now under way, is expected to take "five to 10 years".

"We would help stabilize what is to become the main channel of the river by dredging and revetment work as part of preparation of a bridge site," Fowler said.

"This work would cost some $3 million to be paid from interstate funds, and would include dredging . . . approximately 900 ft from the present west bank to a point below the proposed bridge site.

"It is anticipated that this channel will become part of the main river channel when stabilization work further up the river is completed.

"Our plan would include reveting the east bank of the channel, which eventually would become the east bank of the river."

Fowler expressed hope that necessary approvals could be obtained "within a year" and plans drawn and the structure started "in about five." "At least we could think in terms of five years instead of having to wait five years or more, to begin our planning," he said.

The officials attending the conference agreed the proposed new bridge should have two 28 ft roadways with a 4 ft center mall and 3 ft sidewalks on both sides.

Huge Vertical Louvers Face Office Building

Aluminum louvers, 38 ft 8 in. high, protect the sun side of the new 400 Beverly Building in Beverly Hills, Calif. Adjustable, the louvers can be fully opened on cloudy days and closed for protection during storms.

The louvers—there are 30 set on 4 ft centers—are 50 in. wide and taper from a thickness of 8 in. at the center to 1¾ in. at the edges.

Positioning to follow the sun is governed by an automatic time control mechanism. Although the total weight of the louvers is about 13,500 lb, they are rotated to proper position by a single ¾ hp motor.

The office building, costing about $1 million, was designed by John C. West, Los Angeles. Lemlar Manufacturing Co. fabricated the aluminum louvers.

Lake Champlain Bridge Will Cost $20 Million

A Boston engineering firm has been given the go-ahead signal to investigate sites of a third bridge across northern Lake Champlain, to connect Vermont and New York State. It is expected that the bridge will cost about $20 million.

The Lake Champlain Bridge Commission signed a contract with the engineering firm of Fay, Spofford & Thorndike, Inc., to provide for investigation of the site, preparation of proposal forms for bids for seismic soundings, soundings, borings and other surveys, and to make traffic surveys and investigate types of bridges suitable for the crossing. Reports are to be ready in 1958.

There are now two bridges across the lake under jurisdiction of the Bi-State Commission—one at Rouses Point, N. Y. and the other at Crown Point, N. Y.

OK Building Tanker Pier To Deflect Torpedoes

The Corps of Engineers has approved construction of a tanker pier at Jamestown, R. I., clearing the way for the construction of a new $45 million oil refinery by the Commerce Oil Corp. (ENR June 13, p. 21). The L-shaped pier—not connected to the shore—is to protect tankers from erratic Navy test torpedoes fired from the nearby Gould Island Test Station.

Navy approval is now awaited for placing of submarine nets and other safety devices.

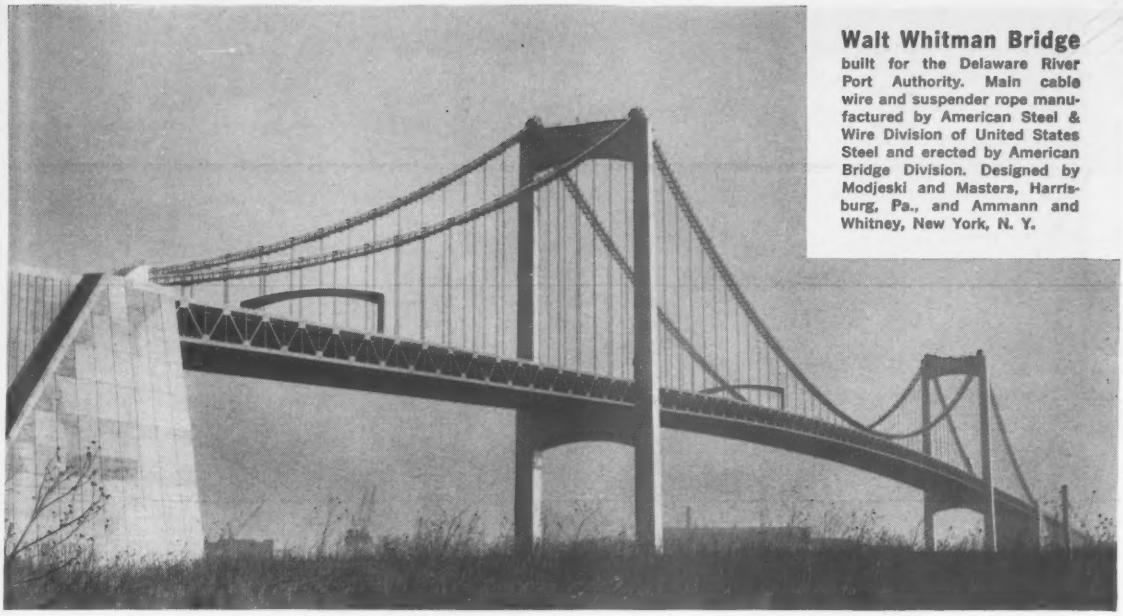
Commerce Oil officials were jubilant with the Corps' approval and predicted that construction of the pier and refinery will start soon. Although test borings are now being made, company officials said that refinery production will not start before 1959.

Firms Cited for Safety By Corps of Engineers

Two West Coast contractors have received safety awards from the Corps of Engineers for superior achievement in accident prevention during construction of McNary and The Dalles Dams.

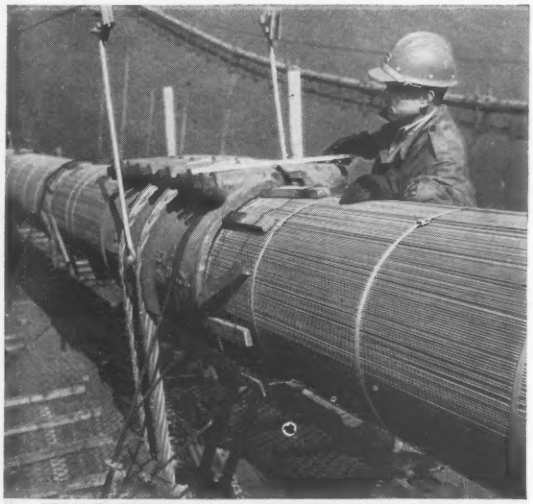
Firms are Cascade Constructors, Sacramento, and Montag-Halvorson-Cascade-Austin, Portland, Ore. Bronze plaques were presented last month by Brig. Gen. L. H. Foote.

On McNary Dam, Cascade suffered no injuries and only one minor property damage accident over a 35 month period. And on The Dalles Dam, the Montag combine had no injuries and only four minor property damage accidents during the period Nov. 30, 1955-Dec. 19, 1956.



Walt Whitman Bridge
built for the Delaware River Port Authority. Main cable wire and suspender rope manufactured by American Steel & Wire Division of United States Steel and erected by American Bridge Division. Designed by Modjeski and Masters, Harrisburg, Pa., and Ammann and Whitney, New York, N. Y.

New Walt Whitman Bridge at Philadelphia expected to carry 15 million vehicles the first year!



Main Cables each consisting of 11,396 wires, .196 inches in diameter, spun parallel and compacted to approximately 23⅛ inches in diameter.

SPANNING THE DELAWARE RIVER between South Philadelphia and Gloucester City, N. J., the great new Walt Whitman Bridge extends 3,540 feet from anchorage to anchorage. The over-all length with approaches is nearly 6¼ miles, making it one of the longest bridge systems in the world. The bridge carries seven lanes of traffic in a roadway over 79 feet wide. The two towers are as high as 30-story buildings and the center span is 2,000 feet long. At midpoint, the clearance is 150 feet above mean high water.

The two huge suspension cables were "spun" from American Tiger Brand Galvanized Bridge Wire. They are each 23⅛ inches in diameter, contain 11,396 wires and are 3,845 feet long. These cables support the bridge floor through vertical suspenders of 2$^{9}/_{32}$-inch-diameter Tiger Brand Galvanized Bridge Rope. A total of 61,700 feet of pre-stressed suspender rope was used in the completed bridge.

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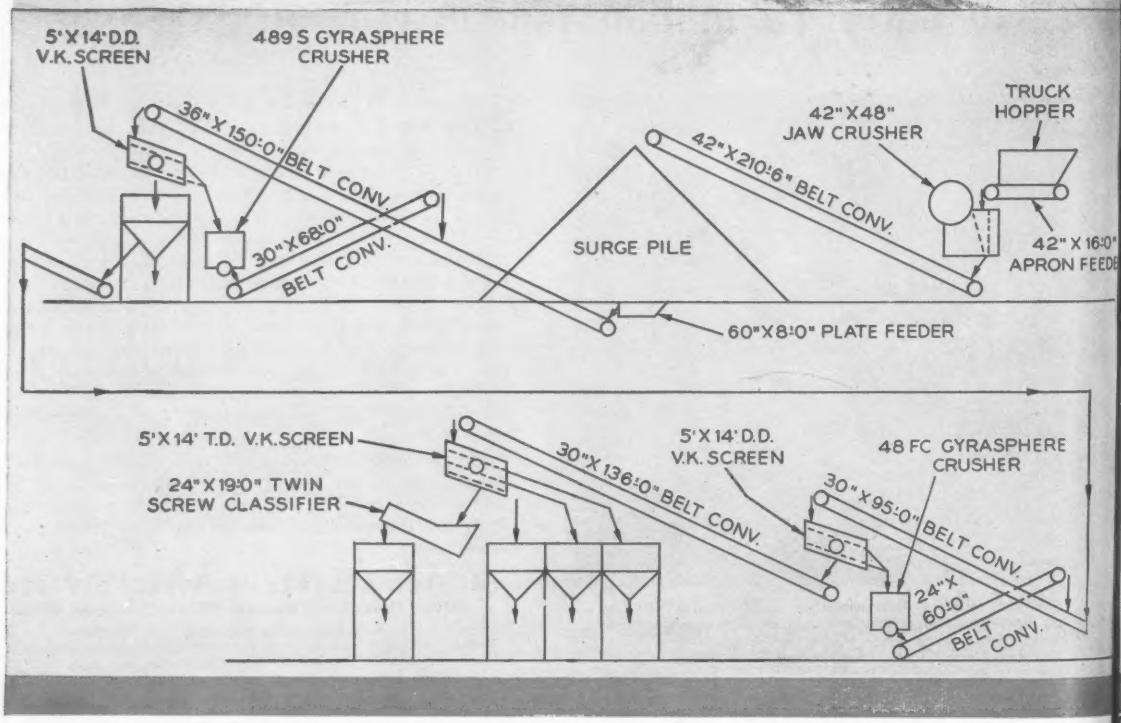

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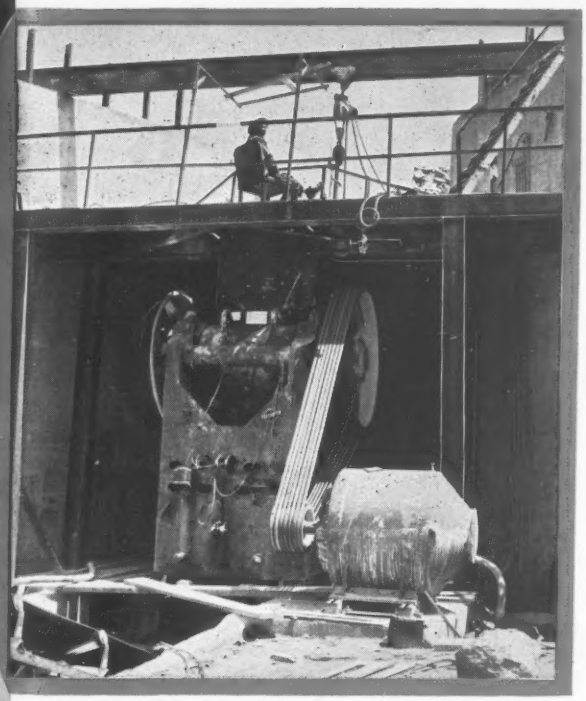

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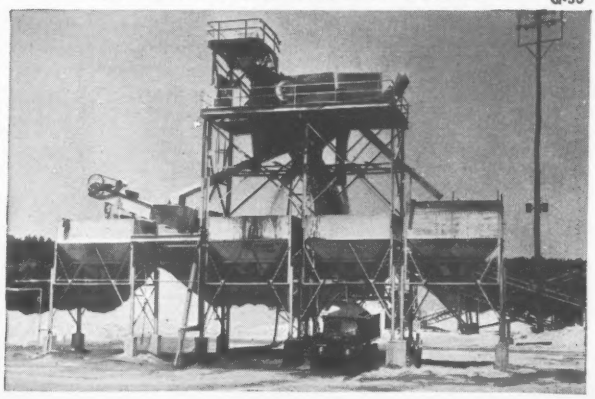
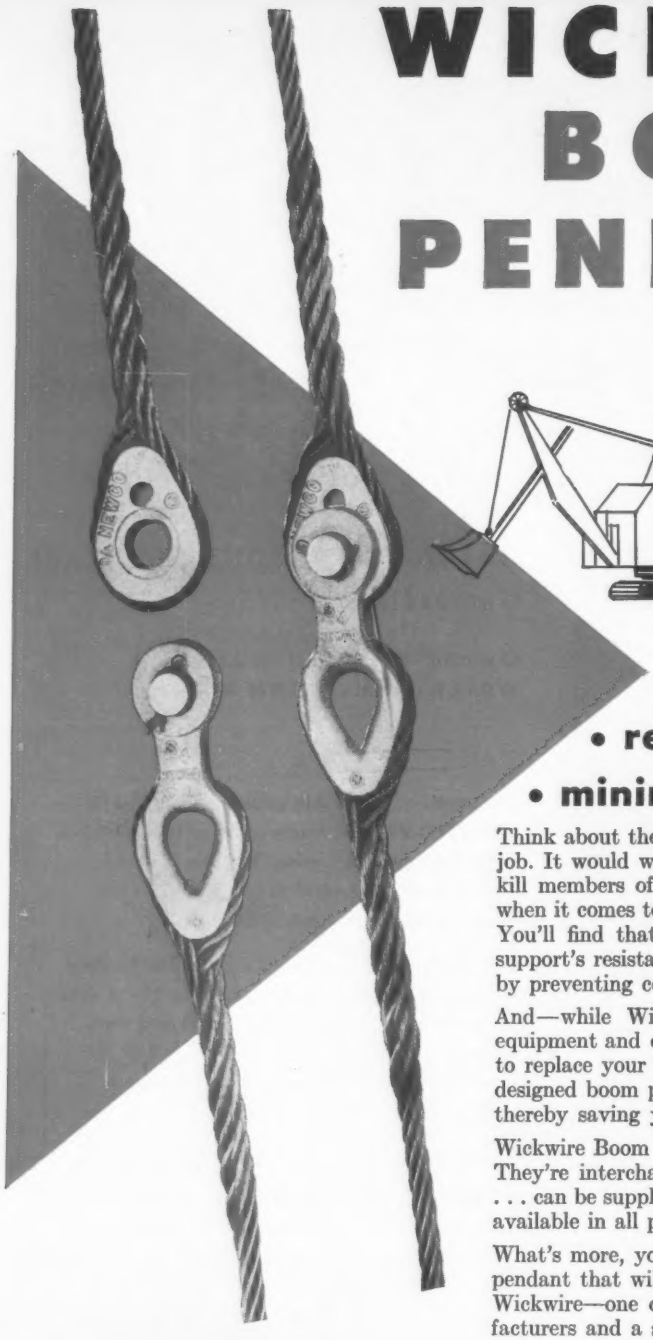
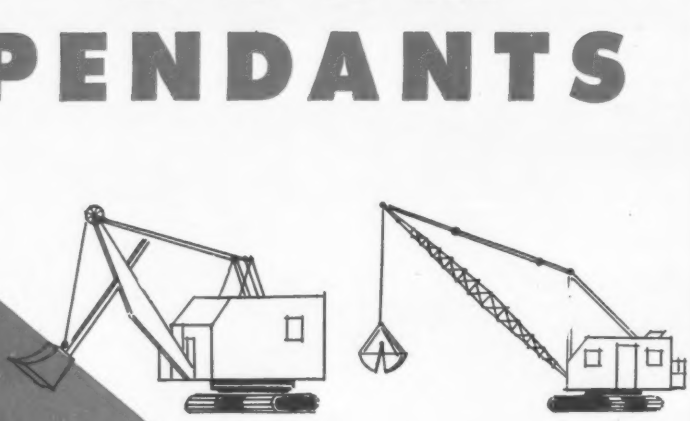


Q-36

WICKWIRE BOOM PENDANTS





• resist fatigue

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• minimize vibration stresses

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Briefs

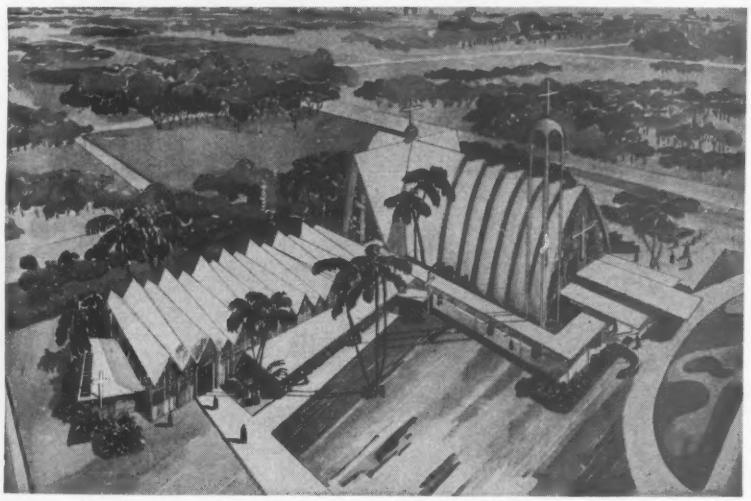
• **Business center**—A $41 million business center, containing a 6 story office building, 250 room hotel, railroad terminal, department store, 8,000 car multi-deck garage and many retail and service shops has been started in New Rochelle, N. Y. The development will provide over 75 acres of floor space in 10 buildings built over the tracks of the New York, New Haven & Hartford Railroad, and will be known as the Westchester Terminal New Plaza. The center is expected to be completed in early 1959. Boak & Raad are the architects and Greenhut & Taffel are the engineers.

• **Sanitary engineering**—A graduate program in sanitary engineering—stressing the fundamental sciences—will be offered this fall at Illinois Institute of Technology, Chicago. Admission is open to students with engineering bachelor's degrees.

• **Mackinac Bridge nears completion**—Steel sections forming the suspended 4 lane roadway of the Mackinac Bridge will be in place by the end of July. Erection of the roadway marks the last phase in the construction of the $100 million bridge. At the same time, the last of 85,000 cu yd of concrete is being placed in each cable anchorage.

• **Libby Dam revived**—Bills calling for construction in two stages of the $285 million Libby Dam on the Kootenay River in northwestern Montana have been introduced by a group of western congressmen. The first stage would confine the reservoir within the U. S. The project was first authorized by Congress in 1950, but its construction was contingent on an agreement with Canada since water would be backed into that country. No action is expected until the U. S. and Canada reach agreement on the whole Columbia River basin development.

• **Street conversion**—City officials in Detroit are weighing the proposal to change about 1,800 ft of Woodward Ave. in downtown Detroit into a traffic-free shopper's and pedestrian's mall. The conversion would extend from Grand Circus Park to Michigan Ave. and would be financed out of existing funds. Eichstedt-Johnson Associates, Detroit, have prepared preliminary drawings.



Sandwich Type Shell to Enclose Church

The proposed new St. George's Syrian Orthodox Church in Houston, Texas, will be enclosed in a thin sandwich shell consisting of a layer of foamed polystyrene and 1½ in. of sprayed-on concrete reinforced with welded fabric.

The plastic will be installed in 9 ft strips, 18 in. wide and 3 in. thick. The material, serving as insulation, is pliable and can be easily fitted to the curved surfaces required.

The church building is designed in the form of a Greek cross. Curved steel arches on 8 ft centers will form the structural ribs.

The church is 104 ft long, 38 to 55 ft wide and 40 ft high. With adjoining recreation building, it will cost about $100,000.

Tom Notestine is the architect and Frank Niven is structural engineer. Both are from Houston.

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Rotating dome for C

The Nassau Astronomical Station. The viewing opening is comprised of two shutters, which slide to the right and left. Fully open, the port is 7½ feet wide. A 1 h.p. motor opens and closes the shutters.

for Case Institute Observatory

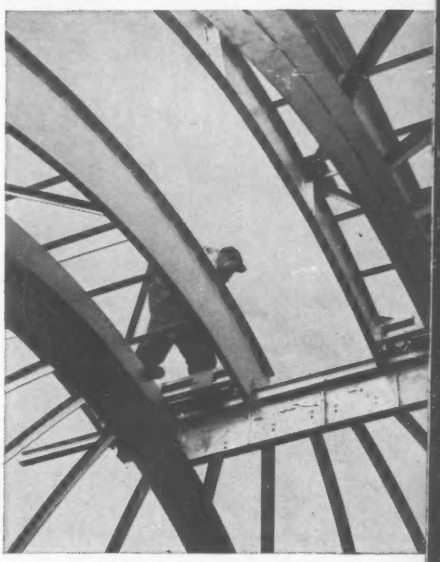
fabricated from USS STRUCTURAL STEEL

ON A 160-ACRE SITE, 1,250 feet above sea level in Northern Ohio, is the Nassau Astronomical Station, established by Case Institute of Technology to analyze the structure of the stellar system.

The observatory building houses a darkroom, a workshop, and living quarters for two observers. Topping the structure is a rotating dome, containing the 24—36-inch Schmidt-type telescope, one of the largest instruments of its type in the world.

The Structural Steel dome was prefabricated to specifications at the Cleveland, Ohio, plant of The Paterson-Leitch Company, then shipped to the observatory site. Although approximately 17 feet high and 28 feet in diameter, the dome is so well-balanced that a mere 5 h.p. motor is all that is needed to rotate it. The dome revolves about a circular track on steel wheels mounted on the underside of its base ring.

Here is another application which points up the precision with which Structural Steel can be used, the ease with which it can be fabricated, and the almost limitless number of ways it can be shaped and formed. Structural Steel is one of the strongest of load-bearing construction materials—yet, paradoxically, it is the most economical. It possesses excellent mechanical properties, effectively resisting tension, torsion, compression and shear. Enclosed in buildings, it lasts indefinitely—requiring no maintenance. It may be riveted, bolted or welded – erected in any weather. And Structural Steel members can be fabricated indoors, where weather will have no effect on the quality of workmanship. We suggest that you fill out and return the attached coupon.



The dome being erected at the observatory.

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The Structural Steel dome, prefabricated and assembled in the plant of The Paterson-Leitch Company, Cleveland, O.

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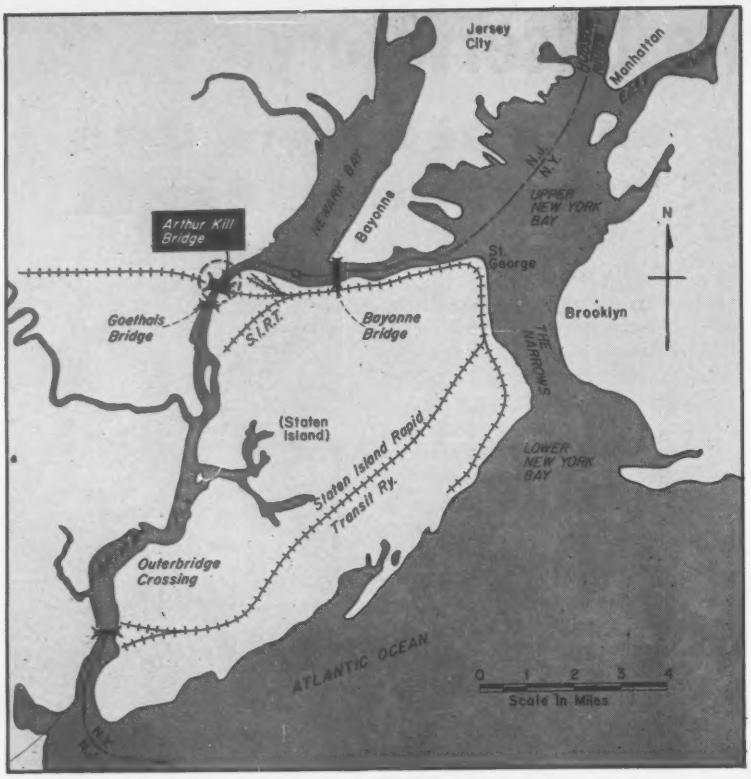
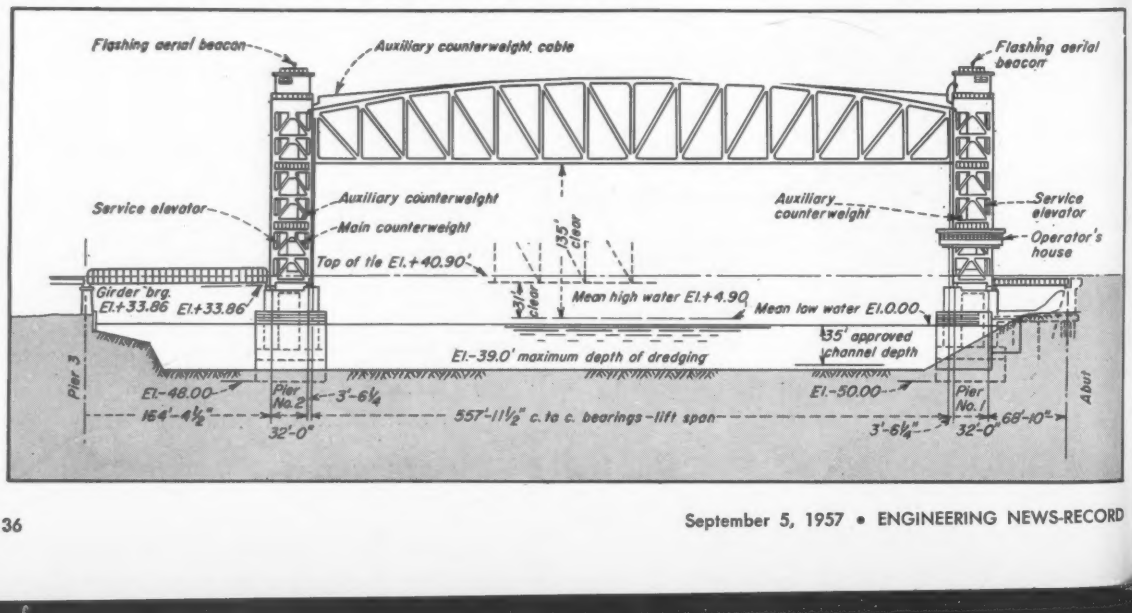
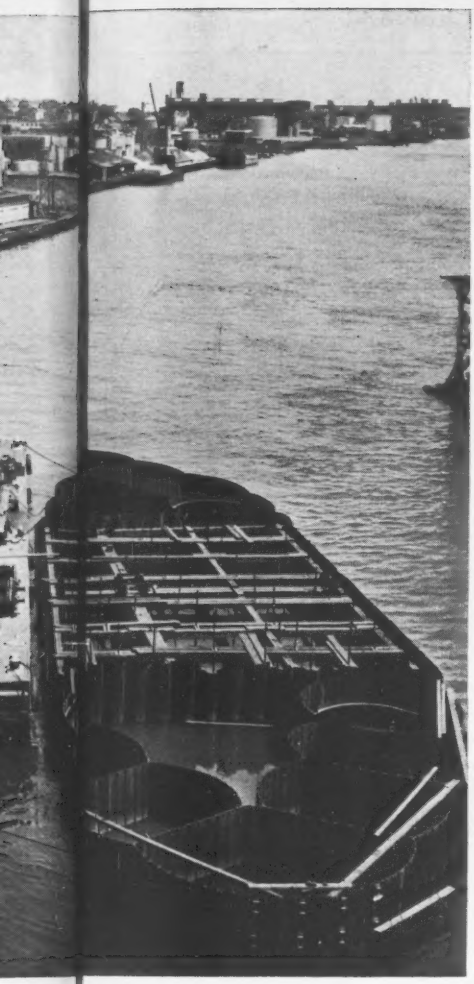


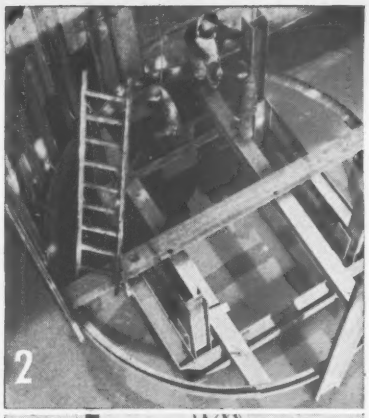
The longest lift span bridge in the world is being constructed across the Arthur Kill, between Elizabeth, N. J. and Arlington, Staten Island to replace a still operable 70 year old railroad swing span.

Little Ra

UNUSUAL size of new bridge is evident from dimensions on drawing below







COMPLETION of the neat geometric pattern that is the cofferdam for pier 1 (picture 1) was preceded by installation of cell frame (2), driving of sheets for first cell (3), and construction of additional cells (4)

Railroad Gets Biggest Lift Bridge

Anchoring a cofferdam on solid rock with no overburden to provide lateral stability is never easy—and when the structure puts up a solid front of 2,500 sq ft of steel against the reversible pressure of a 4 to 6 knot tide, the job is doubly difficult. Yet that is just one of the problems that confronts the contractor installing the substructure for what will be the worlds longest lift span.

The bridge in the Arthur Kill crossing of the Staten Island Rapid Transit Railroad Company, a subsidiary of the Baltimore and Ohio Railroad. Connecting Elizabeth, N. J. with Arlington, S. I., the 1,647 ft long single track structure will have 13 piers, two abutments, and a vertical lift span that measures 558 ft from center to center of its bearings. (This span will exceed by 14 ft the span length of the Buzzards Bay Bridge over the Cape Cod Canal in Massachusetts). In its open position, the Arthur Kill span will clear MHW by 135 ft, and will provide a 500 ft wide clear navigation chanel.

More than 5,000 tons of structural steel is going into the span and its towers, with the span itself accounting for about 2,000 tons. And the massiveness of the structure is not the whole story—the new bridge is being built just 61 ft north of an operable swing span constructed by the railroad in 1887. Because the old bridge has 200 ft spans, the new construction must be so handled as to provide clearance at all times. This is particularly hard for the superstructure contractor, since the new span, except when fully raised, will prevent opening of the old swing bridge. Because construction in place of the new span is therefore precluded, it will be built elsewhere, floated to the site on barges, and on being positioned, it will be immediately raised to its topmost height.

For Charles F. Vachris, Inc., the substructure contractor, the old bridge is a consideration, but not realiy a problem. However, Vachris has other difficulties even though 12 of the 13 piers are being built as land operations. Pier 1, which will support the east tower will eventually have one face in the river, but not until, after construction is completed. The relatively small pier 3 on the west bank involved a cofferdam but it has land on three sides.

Pier 2, which is the support for the west tower, is the only one of piers completely surrounded by water. It's

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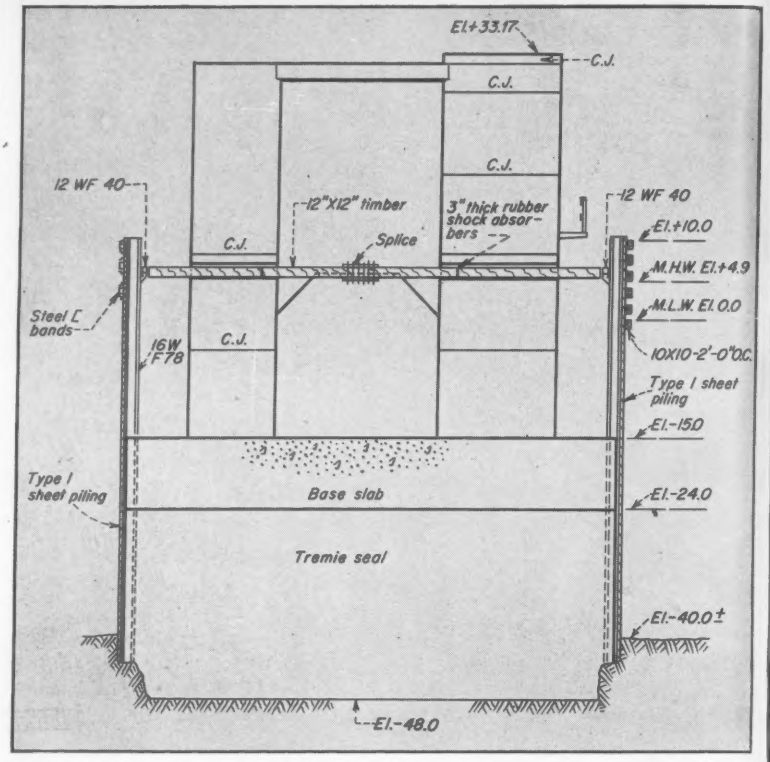
. . . Biggest Bridge for Little Railroad



PIER 2 drawing shows how cofferdam sheeting will become part of permanent fender system. Rubber cushioned struts connect opposing sheets.

foundation is a rectangle 62 ft wide and 68 ft long, set 11 ft in rock of the stream bottom, under 39 ft of water.

Because there is no earth overlying the rock, stabilizing the cofferdam during construction was a major concern of both the engineers and the contractor. To solve this, the engineers, Parsons, Brinckerhoff, Hall & MacDonald of New York, designed a permanent fender system at each end of the pier which could be installed before the pier footing itself, and which could be used as an anchor for subsequent construction. This part of the fender system consists of a series of rock-filled sheet pile cells installed in the form of a triangle at either end.

• **Logistics**—The relative ease with which the cells and cofferdam were installed is the result of careful planning. All the necessary forming, shaping and initial construction was done on land. In setting up the cells, a single piece of sheeting was laid flat on the ground. Two preformed shape rings were then positioned vertically on the sheet and at right angles to it and were welded in place. With the rings temporarily steadied, a second sheet was welded to them opposite the first sheet. With the addition at the quarter points of two more sheets, the basic cell was ready for placement.

To insure proper positioning of the cells and to maintain stability until after the remaining sheets were driven, a four legged rectangular frame was made up with a box at each of its internal corners to accommodate an H beam spud. With the frame in a vertical position, the spuds were placed and bolted to the top boxes. The cell and frame were taken to the site by barge and the frame was placed first. When it was exactly spotted, the spuds were driven into the rock. The partially completed cell was then dropped over the frame until its four sheets rested on the bottom. The intermediate sheets were then set and driven as far as possible. About 20 ft of stone was then dropped inside the cell, and the frame was extracted.

With the end cells to serve as anchors, the main cofferdam was started. The framework of the main dam was also built on land. For manageability the frame was made in four separate sections each 31 ft wide, 34 ft long, and 35 ft high. A section consisted of four vertical 12 in. w.f. 65 lb. beams to which were welded, at proper heights, the top and bottom walers. Since each section was a complete box

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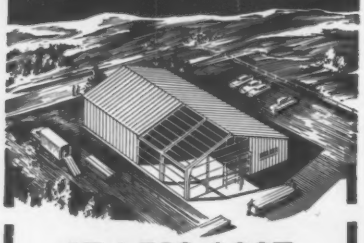

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Biggest Bridge for Little Railroad

NEW BRIDGE is so close to old one that piers stand at toe of approach fill.

EXISTING FILL was replaced by trestle (left) to permit installation of Pier 1 cofferdam

within itself, the internal horizontal members of each frame butt against the corresponding members of the adjacent frame to form the struts of the complete assembly. Each corner of each section carried a spud, and the main frame was set in the same way as the cell frames.

Before any water work was done on either the cells of the main cofferdam, the rock under the footing area of pier 2 was blasted to elev. — 50.0. To permit holding the sheets on line during driving, the broken rock was left in place until after completion of the coffer work. The rock was then clammed out, and the hole was inspected by a diver. What little silt had found its way into the pocket was removed with an air lift. Concreting of the pier footing was done by the Prepakt method (ENR Nov. 22, p. 33).

• New problem—The foundation for pier 1 posed problems just opposite to those of pier 2—where pier 2 had no earth overlying the rock, pier 1 had too much—and all in the wrong place. The pier is being constructed inshore from the east abutment of the existing bridge, and almost half of it is inside the 30 ft high fill that carries the tracks to the old bridge. Before any work could be done on the pier, it was necessary to remove 140 lf of this fill and build a trestle under the tracks. By driving the piles outside the track and capping them a bent at a time, it was possible to do most of the work during regular working hours. The excavation of fill and completion of the trestle was accomplished on a week-end when rail traffic was slow.

Except possibly for its size and for the amount of timber used in its construction (85 MBM in all) there is only one thing unusual about the pier 1 cofferdam. For extra rigidity during

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installation, and for support of the sheets when in later use as part of the fender system, approximately every fourth sheet of the west wall was driven with a 16 BP78 beam welded to the full length of its inside face. The 55 ft long sheets are seated in rock at about elev. —40.0 and the rock was removed to elev. — 50.0.

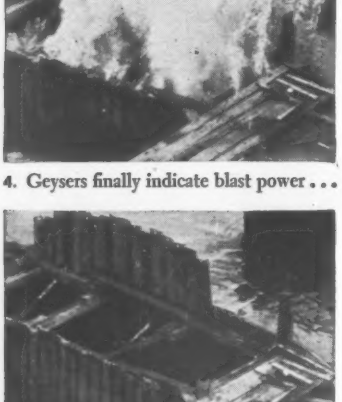
In the installation of the dam, however, the contractor encountered a few unexpected difficulties. Although the sheets were driven as far into the rock as possible, both the east and west walls gave trouble. On the east side

Movie Faster Than Eye in Blast Check

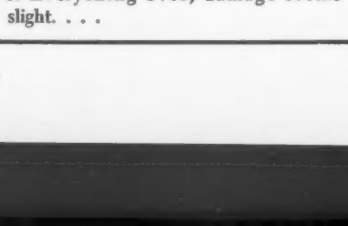
1. Before blast, cofferdam is in order . . .

2. Blast moves sheets out; planks fly . . .

3. Sheets return as water starts up . . .



4. Geysers finally indicate blast power . . .



5. Everything over, damage seems slight. . . .

The blast went off—and for a short time after the debris had settled, everyone watching was sure that the dynamiting had been a success. There was some superficial damage to the top walers and struts of the cofferdam around the blast area—but nothing serious.

Then came closer check, and a discovery. The underwater struts and walers were misplaced and several were actually shattered. The inspectors were surprised. They had witnessed the explosion from close range and had seen nothing unusual. There had been the expected noise when the charge was set off, the ground shook a little, and a lot of water had blown into the air, but that was all. Yet for no apparent reason the cofferdam was damaged.

It took a slow motion movie film (five frames of which are at the left) to reveal what the human eye could not catch. The pictures, taken by project engineer John P. Maynard, prove that at the instant of the explosion the sheets were blown away from the walers thus dislodging the internal bracing. Then—even before the water could react to the blast—the sheets slammed back into place.

The scene was the cofferdam for pier No. 3 of the railroad bridge across Arthur Kill (see accompanying article). The job was to break up about 2.5 ft of red shale which kept the sheets from reaching the required penetration. The blast was the second within the cofferdam.

Pier No. 3 is on the west bulkhead line of the river. On three sides there is land. On the fourth side there is water. The pier is small and its footing depth is not great. Its cofferdam measured only 30.5 ft by 11.5 ft and from ground elev. + 9.3 its sheets were to penetrate only to El. —20. Walers systems were set at elev. +5.0, 0.0, and —5.0.

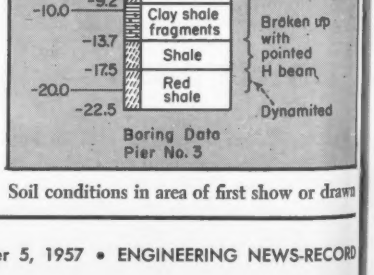
The sheets were driven without difficulty to El. —17.0, and the cofferdam was mucked with a clamshell bucket to elev. —13.7. The spoil consisted of miscellaneous fill, cinders, silt, and shale fragments. At this point the shale became too hard for the clam alone so the next three ft was broken up with a pointed H Beam ram. At Elev. —17.5 the ram became ineffective, and it was decided to break up the last 2.5 ft with two separate charges of dynamite, clearing half the dam each charge.

For the first blast, which covered the north half of the cofferdam, the blasting subcontractor bored 11 1.5 in. dia holes about four ft on centers, and loaded them with 65 sticks of 60% dynamite. Immediately after the blast, it was obvious that the cofferdam had been damaged, so the water was pumped down to elev. —5.0 and the struts and walers were repositioned.

Because of the damage done by the first charge, the second charge was modified. The hole pattern was the same but only 10 holes were drilled. They were loaded with 70 sticks of 40% dynamite. In spite of the lighter charge, the damage caused by the second blast was greater than that of the first.

To seal the cofferdam so repairs could be made, the sheets were driven to grade and the hole mucked out. It was then found that the toe of the sheets had buckled in as much as two ft.

This reduced the footing area beyond the amount deemed safe, so it was necessary to straighten out the sheets. To do it alternate sheets were pulled. As the damaged toe section of the sheet being pulled came up into the undamaged interlock of the adjacent sheets, it was forced straight. The still bent intermediate sheets were then pulled up through the initially straightened sections with the same result. The remaining loose rock was removed, the hole was checked and 10 ft of tremie concrete was placed without redriving the sheeting.



Soil conditions in area of first show or drawn

of the hole voids beneath the toe of the sheets in the shale were responsible for blows. With the hole almost excavated Vachris found it necessary to drive an inside line of sheets against the original wall. These sheets were driven to elev. — 50.0 and were cut off at elev. — 36.0. On the west wall, crumbling shale let the sheets drop almost one foot, causing a buckle in the adjacent struts. At the suggestion of John Maynard, project engineer for the railroad, the contractor cabled the high point of the struts to a lower point of the sheets thus preventing further distortion of the frame.

Minute quantities of noxious gasses were detected throughout most of the pier 1 excavation but it wasn't until the final stages of the excavation cleanup that they gave any trouble. On the day before the footing was to be placed, a workman, squaring off a corner of the hole, hit a pocket of unidentified gas and ten men required medical attention. The pier footing itself—a 24 ft thick block containing 3316 cy of unreinforced concrete was poured uneventfully in one 67 hour stretch.

Because more than 3,500 vessels of one type or another will pass under the new bridge each month close attention was paid to the design of the fender system on pier 1 and 2. On both piers, the steel sheet piling driven for the sides of cofferdams will become an integral part of the permanent fender system. The pier legs will start at the top of the footings (elev. — 15.0 on pier 2 and —17.00 on pier 1) but in both cases the sheeting will run up to elev. +10.5 forming a partially hollow box of free-standing steel. To connect the two sides of the sheeting, four 14 in. square holes will be formed through the pier legs at elev. +4.00. Through these holes will be placed 12 x 12 in. timbers long enough to reach from the waler (to which they will be bolted) to a point just inside the concrete of the pier leg. A special 3 in. thick rubber bumper block will be placed in the hole against the end of the timber. A two piece center spacing strut will then be placed between the bumper blocks. Thus, the flexibility of the steel sheeting and the presence of the rubber blocks will provide twofold protection to both the structures and any vessel which may strike it.

The $7.6 million structure is being built under the provisions of the Truman-Hobbs Act, and the Federal Government is therefore paying 82.5% of the costs, with the railroad picking up the tab for the balance. John P. Maynard is project engineer for the railroad. Joseph G. Crowley is resident engineer for the U. S. Army, and Edward Plankey is project manager for Charles F. Vachris, Inc.

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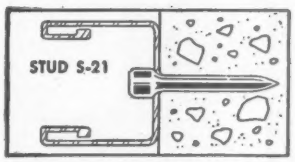

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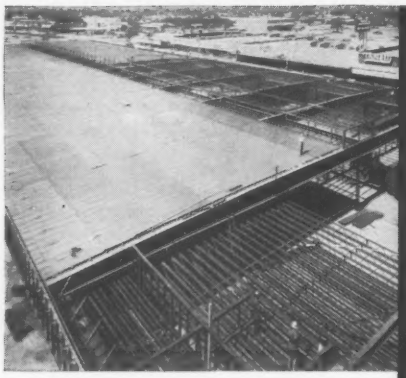

Shopping Center, Panorama City, Los Angeles, Calif. / Architect: Welton Becket & Associates / Contractor: L. C. Dunn, Inc. / Structural Engineer: Brandow & Johnston.

Remington Rand Building, Chicago, Ill. Architect: Harry O. Bartlett / Contractor: J. L. Simmons Co. / Structural Engineer: John W. Emig.

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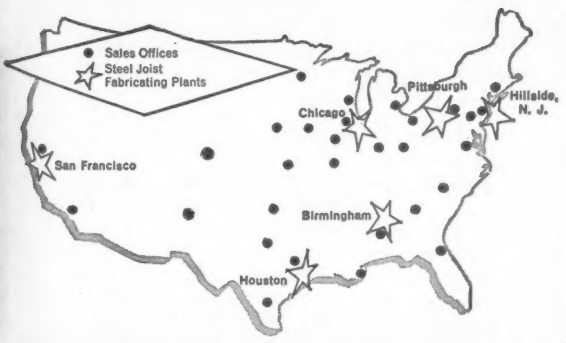

This map shows the coast to coast network of Ceco Steel Joist fabricating plants and sales offices.

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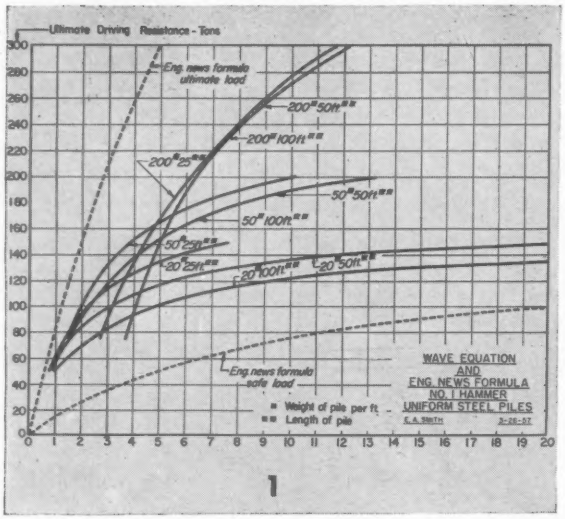
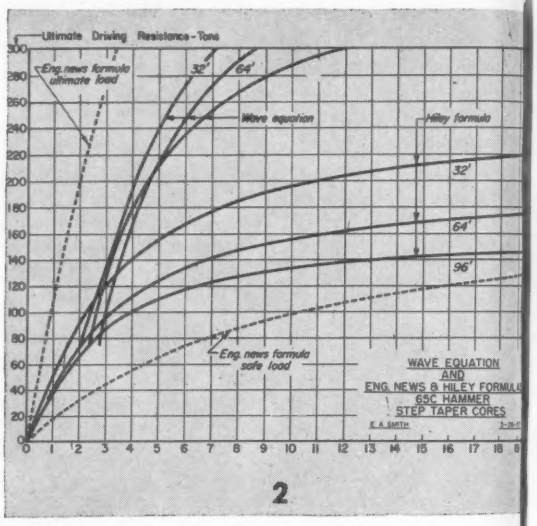
Up to now no one had been known to solve manually the complicated wave equation as it applies to action of a pile under the blow of a hammer. Today it takes but seconds to solve "mechanically" for driving resistance information such as plotted here.





Electronic digital computers are solving the wave equation to answer the question . . .

What Happens When Hammer Hits Pile

Edward A. Smith
Chief Mechanical Engineer
Raymond Concrete Pile Company

It is now possible, thanks to electronic digital computers, to calculate in a practical and economical manner what happens at the instant a hammer hits a pile. As a result, it is possible to tell with far more accuracy than ever before that a certain type pile, driven with a particular hammer to a determined number of blows per inch, is being driven against a definite number of tons ultimate driving resistance.

This knowledge is of course important because, in a majority of cases, the ultimate driving resistance may be used with a factor of safety of 3 or 4 to determine the safe bearing capacity of a pile. Exceptions occur with grounds that either "set up" or "relax" after driving, so as knowledge of ground characteristics is essential, but in the main, the ability to compute the driving resistance accurately will greatly improve the engineer's position in determining the safe bearing value of a pile. All this is now possible because electronic digital computers are available to solve by numerical methods the difficult math involved in applying the "wave equation" to pile driving problems.

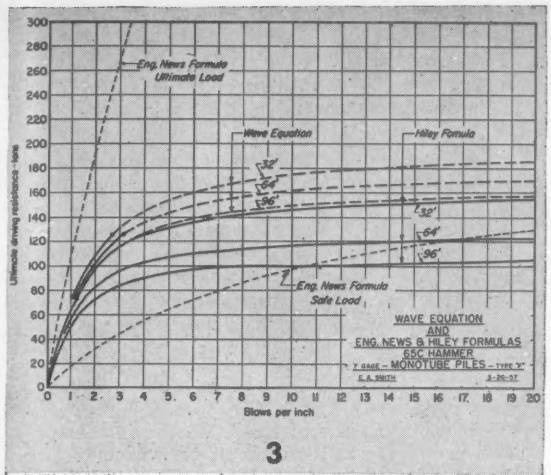
• **The Wave Equation**—The wave equation itself is not new—it has been known to mathematicians for many years. In general, it describes how waves progress from one point to another; specifically, it may be used to illustrate the wave action produced in a long object by a force suddenly applied at one end. In his book "Theory of Elasticity" (McGraw-Hill, 1934) Timoshenko showed how the wave equation might be used to calculate longitudinal wave action in a uniform steel rod.

Furthermore, the idea of applying the wave equation to pile driving is not new. In 1940 and in 1941, A. E. Cummings referred to the subject, and credited D. V. Isaacs of Australia with being, in 1931, the first to suggest its application to pile driving. Cummings also stated that the British Building Research Board in 1938 demonstrated that the behavior of full sized piles under actual field conditions can be predicted by means of the wave theory.

Yet, the wave theory has not, until very recently, been applied to pile driving. The reason for this is simple, and it was given by Cummings—the calculations involved were too difficult. As given by Timoshenko, the wave equation:

$$\frac{\delta^2 u}{\delta t^2} = C^2 \frac{\delta^2 u}{\delta x^2}$$

is a second order partial differential equation. For very simple cases, a



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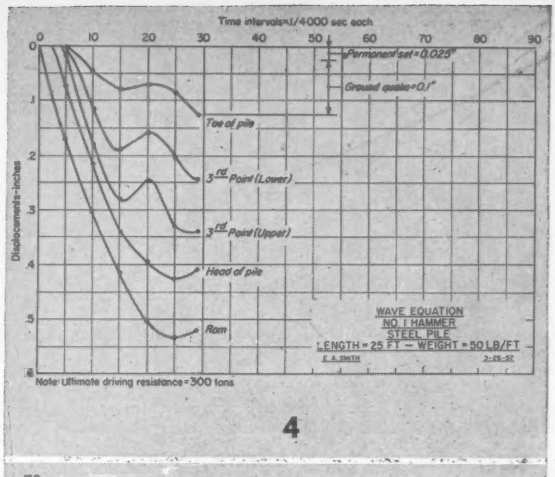

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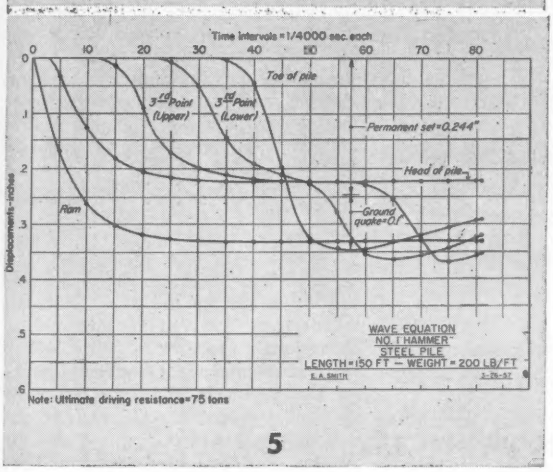

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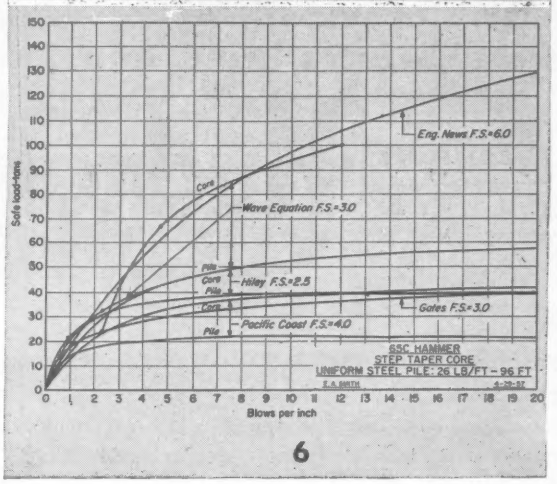

6

when a known force is suddenly applied at one end of a uniform steel rod, the equation can be solved by ordinary calculus. But when the equation is complicated by considerations of the actions of the ram, the cap block, the pile, and the ground, the problem becomes so difficult that no one has been known to solve it.

• **Computers to rescue**—However, the picture has been changed in the last few years by the development of electronic digital computers such as the Sperry Rand "Univac" and the IBM "704." Not only can these machines solve the wave equation as applied to pile driving—but they can do it in a matter of seconds.

The Raymond Concrete Pile Co., working in conjunction with IBM, has made over 250 such computations involving various combinations of pile and hammer types. The mathematical methods used have been checked in many ways and proved reliable. From the results of these calculations, the writer will draw some conclusions, subject to the following qualifications:

1. The importance of variations in ground characteristics as explained in a previous paragraph must be considered as a limiting factor in arriving at definitive conclusions.

2. In applying the wave theory to pile driving, it is possible, with the computers, to include side friction as part of the calculation and in the immediate future this will be done, but thus far the calculations have been made on the basis of an end bearing pile with no side friction.

3. It is not the intent of the writer to offer a new and different pile formula. The problem is far too complicated to be expressed accurately by a single reasonably simple formula. Possibly a formula could be devised with certain constants that would be changed to suit different types of driving conditions, but, for now at least, the results of the calculations are presented only in graph form.

• **Conclusions**—Graph No. 1 shows ultimate driving resistances for various lengths and weights of straight-sided steel piles driven with a No. 1 Vulcan hammer. For comparative purposes the ENGINEERING NEWS formula is also plotted both in its ordinary safe-load form and also in its ultimate resistance form based on the fact that this formula includes a factor of safety of 6. It will be noted that the wave equation curves show considerable variation from one another and indicate that use of the ENGINEERING NEWS formula results in a factor of safety that varies from a little more than one to as much as four.

Graph No. 2 shows a comparison between the ENGINEERING NEWS formula, the Hiley formula and the wave equation for step-taper piles. It will be noted that in general the wave equation indicates that step-taper piles can take quite high loads, much more than allowed by the Hiley formula. It must be remembered that the Hiley formula can be made to give widely varying results depending upon what constants are used with it. In preparation of the graph, therefore, the constants used corresponded to those used with the Wave Equation.

Graph No. 3 shows a comparison between the ENGINEERING NEWS for-

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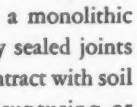

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mula, the Hiley formula and the wave equation for No. 7 gage Monotube piles. In general the wave equation and the Hiley formula agree fairly well for such light piles as these.

Graphs No. 4 and No. 5 show one reason why the wave equation agrees with the Hiley formula fairly well in some cases but disagrees with it in other cases. Graph No. 4 shows that at the moment of maximum penetration a short light pile is entirely in compression. This is the condition assumed by Hiley. In Graph No. 5, however, it is apparent from the fact that the curves cross each other, that in the case of a long heavy pile section, it is possible for part of the pile to be in compression at the moment of maximum penetration while the rest of the pile is actually in tension. This is very different from Hiley's assumption.

Graph No. 6 shows a comparison on a safe load basis between the wave equation with a factor of safety of 3 and certain formulas employing the recommended or usual factors of safety.

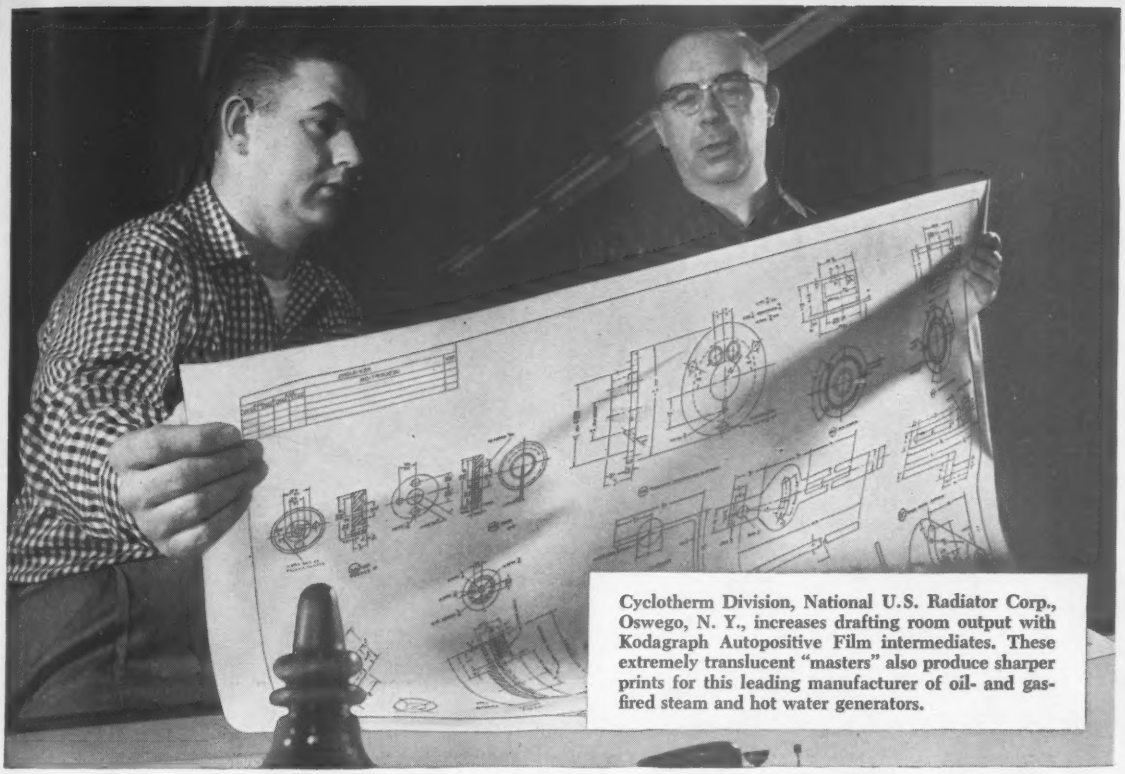
From all these data it must be concluded that the Hiley formula tends to penalize the heavy or long pile and to favor the light and short pile. This comes about because the Hiley formula is shown by the Wave Equation calculations to contain incorrect assumptions as follows:

1. It assumes that the compression of the capblock, the compression of the full length of the pile, and the elastic compression of the ground all occur at one and the same instant of time. This is reasonably accurate for a light pile, but inaccurate for a very heavy pile.

2. It assumes that the percentage of energy transmitted from the hammer to the pile is dependent on the relative weights of the ram and the entire pile. This assumption is reasonably accurate for a short pile, but inaccurate for a long pile.

Chellis, in his book "Pile Foundations" (McGraw Hill, 1951) lists 38 pile formulas that have been proposed and used. No one of them can be accurate for all types and lengths of piles because they all fail to consider the effects of wave action. The newly acquired ability to solve the wave equation as applied to pile driving offers a means of obtaining a truly mathematical solution.

In due course it is expected that additional calculations will be made covering a variety of hammer and pile types, and that the results will be published in the form of tables, resembling logarithmic and trigonometric tables. Meanwhile, it is hoped that the graphs here presented will prove both informative and provacative.



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Inspecting their new 600' Blue Brute rotary compressors are John De Matteo (left), President of M. De Matteo Construction, Quincy, Mass., and General Superintendent Frank Tupper.

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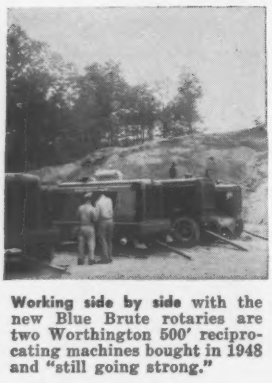
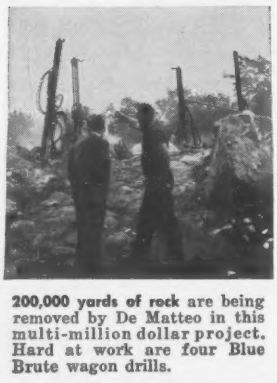
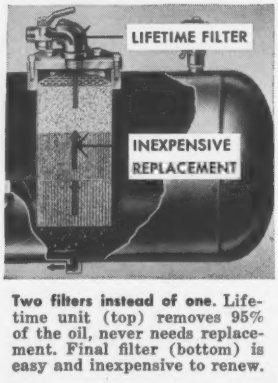


Working side by side with the new Blue Brute rotaries are two Worthington 500' reciprocating machines bought in 1948 and "still going strong."



200,000 yards of rock are being removed by De Matteo in this multi-million dollar project. Hard at work are four Blue Brute wagon drills.



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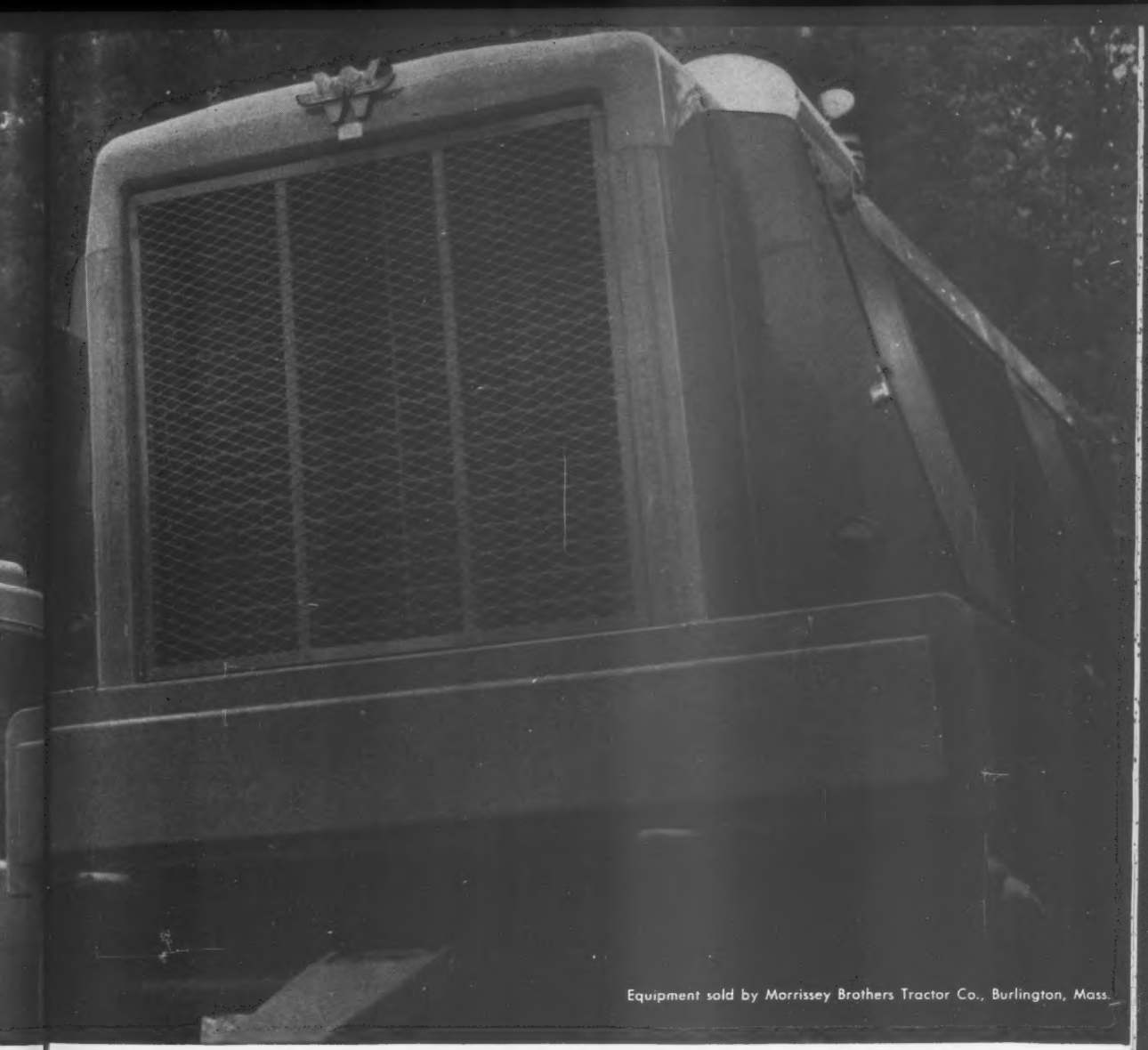


Equipment sold by Morrissey Brothers Tractor Co., Burlington, Mass.

RY FILTER CHANGE" reports M. De Matteo Construction Co. about the new Blue Brute Rotary

"Smartest idea in rotary compressors" says Mr. Frank Tupper, General Superintendent, M. De Matteo Construction Co. "Instead of one expensive filter, the new Blue Brute rotary has two: the Lifetime unit which never needs replacement and a final filter which is easy and inexpensive to renew. We figure to save $180 every time we change filters."

The Lifetime filter that Mr. Tupper refers to is a vortex separator located in the compressor discharge. It removes 95% of the oil from the compressed air. It has no moving parts, never needs replacement. To remove the last traces of oil there's a final filter in the air receiver. It's a long life, low-cost, replacement part.

200,000 yards of rock. De Matteo is using the new Blue Brute rotaries on a $3,244,180 project for the new Massachusetts "Southeast Expressway." Also working on the same job are two 500′ Blue Brute reciprocating machines bought in 1948 and according to Superintendent Tupper, "they're still going strong." They supply the power for four Blue Brute wagon drills and three Blue Brute rock drills being used to remove an estimated 200,000 cubic yards of rock.

See it in action. For a demonstration of the most modern rotary on wheels, get in touch with your nearest Blue Brute distributor. Available in 125′, 210′, 315′ and 600′ sizes. Or write for descriptive booklets to Section H-73, Worthington Corporation, Harrison, N. J. In Canada: Worthington (Canada) 1955, Ltd., Brantford, Ont.

WORTHINGTON

NEW WATER CROSSING FOR STOCKHOLM is a missing link in its subway system, to connect the Old City (right in picture) with the modern business district across the Norrstrom, the North River.

Structural framing beyond the railroad bridge in the foreground of the picture indicates line of cofferdam work. Deep water and bad rock called for concrete caissons in one section, double lines of sheetpiles in another.

Subway for Stockholm Built in Unusua

A 25 year job of creating a rapid transit line for Stockholm is marked for completion late this year when the connecting link now under construction between the already operating north and south sections is finished.

This central section, a little over a mile in length (see map), has been by far the most difficult to construct. Starting under the streets of the business district of the city at Kungsgatan (Kings St.), it crosses under the waters of the Norrstrom (North River) to the island site of the Old City where it follows the bed of an old canal separating the Old City from Ridderholmen Island. Then, rising to the surface, it crosses an arm of water on a bridge to a connection at Slussen with the line to the southern suburbs.

Deep water and bad rock complicated construction of the necessary cofferdams. The rock had to be extensively bolted to control shattering during blasting and to hold it in place as a footing for the cofferdam walls. Also, winter weather and long nights required cofferdam roof enclosures and lighting to permit rapid construction.

The work is being carried out by the city's street department under the direction of its chief engineer, Gunnar Hult. During the cofferdamming stage, his construction assistant was Ake Pousette, who supplied the information on which this article is based.

Stockholm, as indicated on the map, contains almost as much water as land surface. Located on a group of islands and peninsulas of Lake Malaren, where it drains into an inlet of the Baltic Sea, the city is the center of a large metropolitan area badly in need of improved transportation. Suburban communities to the south and west have grown so fast, and vehicular traffic facilities in the city itself are so limited by geography, that only a rapid transit system, with the lines underground in the city itself, offers any possibility of relief.

Fortunately, this situation was foreseen in the late 1920's, and an overall plan was formulated. The first part to be completed was the tunnel linking the southern suburbs with the Slussen area, at the boundary of Stockholm's Old Town. It was opened in 1933, and until 1950 operated by ordinary tramway cars.

The second part, completed in 1952, was a surface line from the west, which entered the city over the Traneberg Bridge (once the longest concrete arch in the world) and then went into a cut as far as Lindhagensgatan (Lindhagen St.) in Kungsholmen, the western most of the four main inner-town districts that surround the Old Town. From here the line was built as a subway, consisting in part of single or double track rock tunnels and in part of double track cut-and-cover boxes just below street level. This section ended at Kungsgatan in the Norrmalm section of the city.

The subway now under construction, a double concrete box accommodating four tracks, is the connecting link between these southern and western branches of the system.

Because Lake Malaren discharges its water into the sea through the Norrstrom, only a third of the waterway could be closed at one time. The cofferdamming and construction was thus done in sections. For a length of about 850 ft to the south, steel sheetpile cofferdams were used, while a 130 ft length at the north side of the Norr-

ua Cofferdams

strom was closed off with concrete caisson cofferdams. For a part of the line in the Ridderholmen canal, where the depth to bedrock is no more than 12 ft, timber cofferdams were used.

• **Sheetpile cofferdams**—Steel sheetpile cofferdams were used where the depth to bedrock was from 12 to 40 ft below sea level. The sheetpiles were driven down to bedrock where concrete toe walls, anchored in the rock, were cast. It was actually the placing of these toe walls which required going to the double wall type of cofferdam. The procedure was as follows:

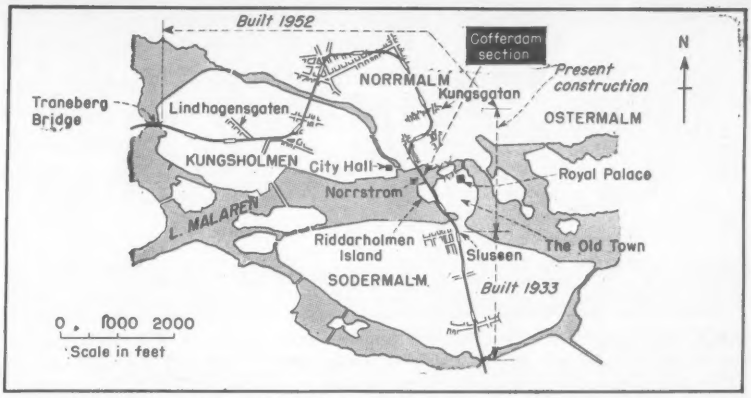
An auxiliary line of sheetpiling was driven down 8 ft inside of the main outer row of piling, as shown in the accompanying drawing. In the space between the two lines of piling, excavation was carried out by divers, installing struts as excavation proceeded.

The divers used large pumps for bringing up most of the excavated material although numerous boulders were encountered which the divers had to remove by hand and grappling hooks. This proved to be a dangerous undertaking because of the occurrence of quicksand outside the piling. The main difficulty, however, resulted from bedrock that consisted to a great extent of rotten material as much as 16 ft thick, which had to be removed before the toe walls could be placed. To hold these toe walls, 1¼ in. bolts, about 6½ ft long, had to be anchored in the rock.

After completion of the toe walls, the auxiliary sheetpiling was extracted, and excavation within the cofferdam began. A row of cross bracing was installed as soon as excavation had reached to about one-quarter of the depth, and then the remainder of the loose material down to rock was removed. Before any blasting could be done, however, the rock had to be very carefully reinforced.

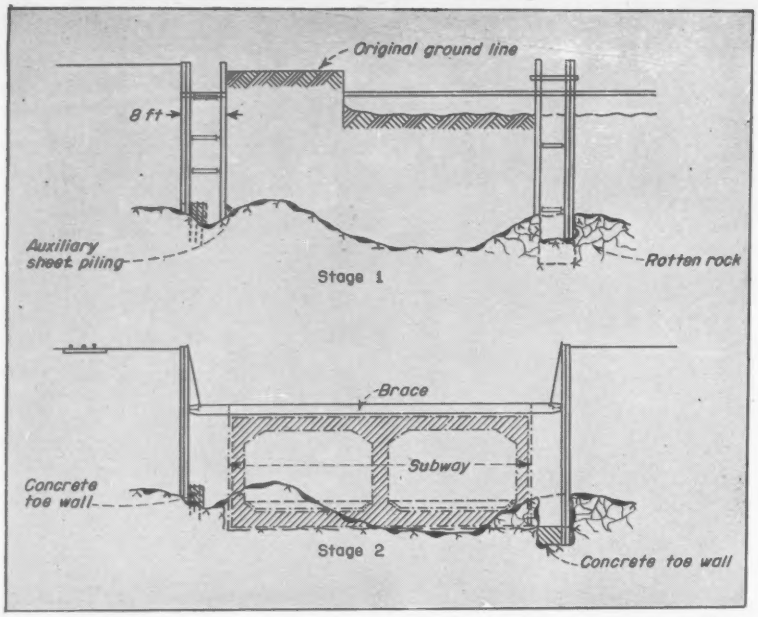
This rock was composed of granite and gneiss as well as badly fissured pegmatite traversed by layers of sand and clay. In addition, the surface of the rock in many places sloped away outside the cofferdam as shown in one of the accompanying illustrations. This rock also had to be reinforced with anchor bolts.

Drilling for these anchor bolts ran into an unexpected difficulty when it was found that a first grouting of the

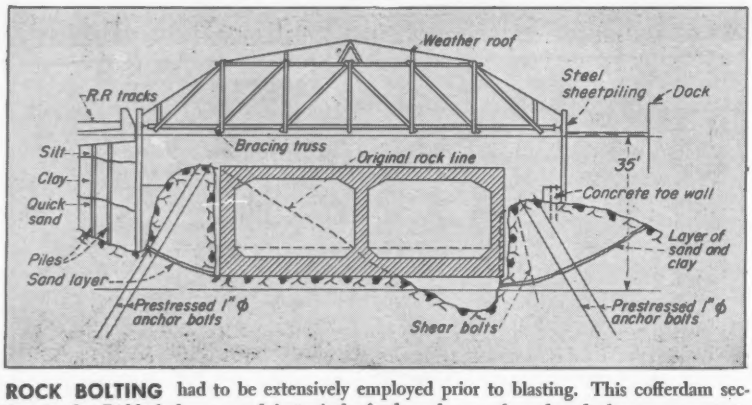


STOCKHOLM'S WATER SEPARATED SECTIONS will be fully joined when a mile-long section of the subway in the central part of the city is completed.

. . . Difficult cofferdamming for subway



DOUBLE WALLS of steel sheetpile cofferdam (Stage 1) were a temporary expedient. Inner line of piling was removed after the toe walls at the base of the outer line of piling had been installed within the walled-off space. Stage 2 shows final cofferdam.



ROCK BOLTING had to be extensively employed prior to blasting. This cofferdam section in the Ridderholmen canal is typical of where layers of sand and clay were present.

rock had not completely filled the sand and gravel layers, with the result that these materials fell down into the holes and made insertion of the bolts impossible. The only way out was another grouting and redrilling.

When possible, the grouting was carried out by inserting a ⅜ in. pipe to the bottom of a hole, and pulling it up as grouting proceeded. But when inserting a pipe proved impossible, grouting was done through the drill-steel. In this method, the holes were redrilled through the gravel using a bit with a slightly smaller diameter than that used for the first drilling. When the bottom of the hole was reached, grout was forced down the hollow steel as it was removed from the hole.

Three methods of bolting were used. Bedrock without weak zones was reinforced with 1¼ in. bolts up to a maximum length of about 40 ft. In these cases, before inserting the bolts, the drilled holes were injected with cement grout from the bottom up to insure a complete filling. Then the bolts were driven in.

Where the rock was rotten, however, bolts were in the form of hollow 1¼ in. deformed bars through which grout could be forced after the bars were hammered down by means of a pneumatic hammer. An advantage of using hollow bars was that a whole series of bolts could be inserted and then all of the grouting could be done at once.

A third method, used where the rock contained layers of sand and clay, employed 1 in. prestressed anchor bolts, made of a cold stretched steel having a yield point of 100,000 psi and a rupture limit of 120,000 psi. Wedges were welded to the sides of the bolts and tests indicated that the bolts would be fully anchored if the bottom 5 ft was encased in cement grout.

After inserting a bolt in a hole, enough grout was applied to provide an anchorage length of about 8 ft. The bolt was then subjected to a pull of about 25 tons for seven days and then unloaded. Finally the full length of the hole was grouted, the bolt prestressed to 20 tons and held under that load by an anchoring nut.

All of this blasting and drilling work had to be handled with care because of an adjacent railway and the proximity of famous, ancient buildings in the Old Town and on Ridderholmen Island. Also, the inevitable leakage through the sheetpiling caused a lowering of the groundwater on the island. And since the buildings in this area had woodpile foundations, such lowering endangered them. Consequently, the ground had to be continuously recharged, and this was done through 2 in. pipes driven vertically along the buildings at about 30 ft centers.

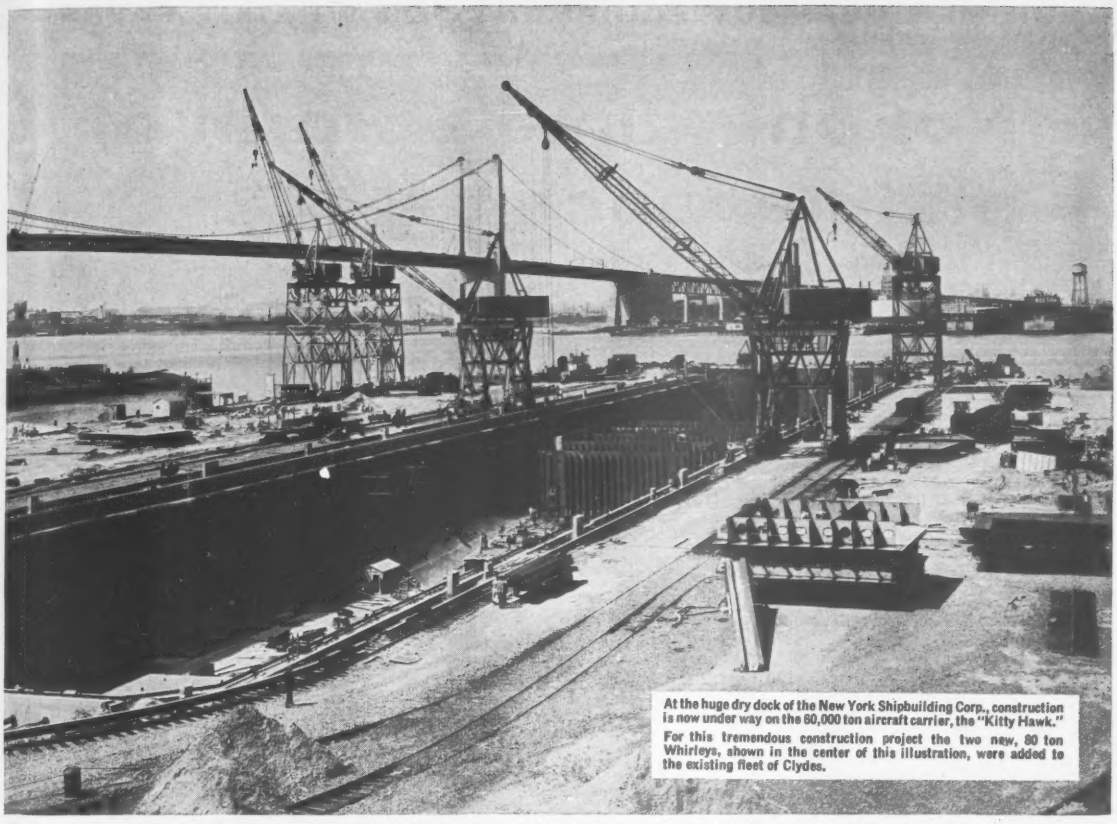
• **Concrete caisson cofferdam**—Toward the north side of the Norrstrom the depth to bedrock approached 50 ft below sea level over a distance of about 130 ft. Here it was not considered advisable to use the sheetpile type of cofferdam, and cost estimates indicated that the quickest, safest and least expensive method was to use a cofferdam with walls made of concrete caissons.

As built, the caissons had a length of 33 ft and a width of 8 ft, the lower part being constructed as a working chamber. Four of these caissons were sunk to form the eastern wall and three to form the western wall of the cofferdam.

To facilitate the sinking of the caissons, which were filled with sand and water, a heavy liquid—a mixture of clay, water and natriumpyrophosphate—was used as a lubricant, according to a method patented by Professor Lorenz of Germany. The liquid was injected outside the walls of the caissons to a thickness of about 4 in. It had a specific gravity of about 1.5, which was enough to balance the active earth pressure.

When the caissons had been brought down to good quality bedrock, drilling for rock anchor bolts was started from the bottom of the working chambers. The drilling was accompanied by grouting of the bedrock and was a difficult job because the close spacing made it

(*Continued on p. 57*)



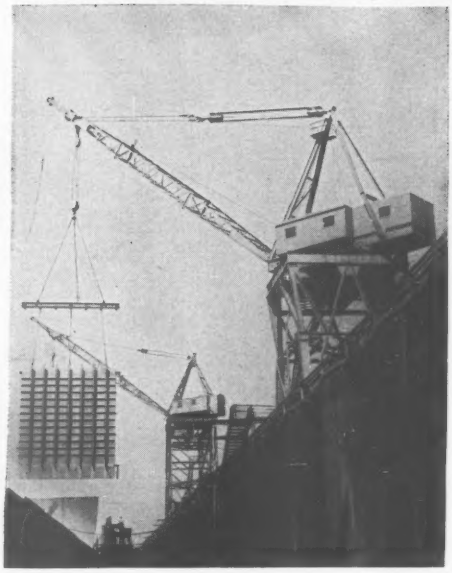
At the huge dry dock of the New York Shipbuilding Corp., construction is now under way on the 60,000 ton aircraft carrier, the "Kitty Hawk." For this tremendous construction project the two new, 90 ton Whirleys, shown in the center of this illustration, were added to the existing fleet of Clydes.

$120,000,000 construction project uses five Clyde Whirleys

With a four acre flight deck one-fifth of a mile long and an overall height equal to a twenty-five story building, this $120,000,000 construction project requires a tremendous amount of material handling know-how. Placing 52,000 tons of structural steel, 1,000 tons of aluminum, 180 miles of piping, 290 miles of cable . . . keeping materials moving on schedule . . . this is the assignment handed the five Clyde Whirleys by New York Ship.

Clyde's full revolving, self-propelled Whirleys have an established reputation of easiest, safest handling . . . equal load distribution on the fully supported turntable . . . a work-capacity that knows no equal! That's why Clyde Whirleys are preferred on major construction projects, at rail transfer terminals, for extra heavy cargo handling at leading ports around the world.

Whatever your material handling problems, it will pay you well to investigate the complete line of Clyde's *performance-proved* Whirleys, Hoists, Derricks, Whirlettes, Car Pullers, Unloaders, and deck and dock material handling equipment. The use of Clyde's Engineering Department is yours without obligation.



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That's this contractor's cost record with a Homelite Diaphragm Pump. Zero for maintenance . . . and he used the pump every day for three months on all types of tough, dewatering jobs. Was convinced last winter . . . when other pumps clogged with hardened sand and clay. The Homelite Diaphragm Pump worked when others wouldn't. Handles water thick with mud, sand, clay, gravel freely. Pumps 5,000 gals. per hour. Handles seepage easily. Starts instantly. Primes fast. Easy on fuel. And lightweight . . . weighs only 120 lbs. Prompt service available from your local Homelite Factory Branch. Write or call for demonstration.

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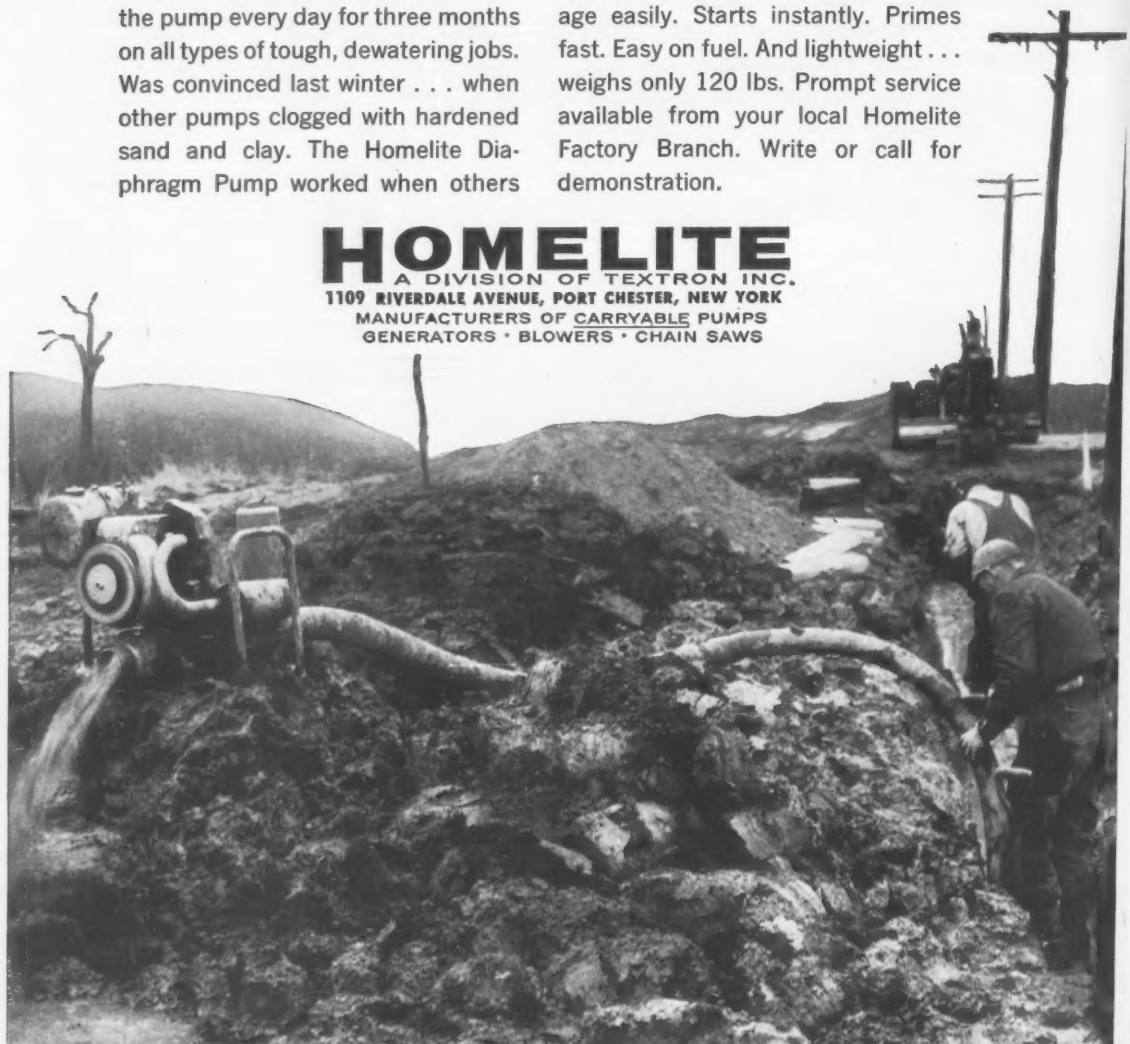
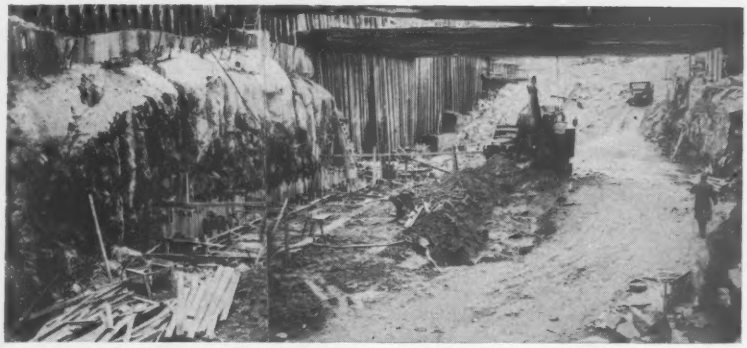
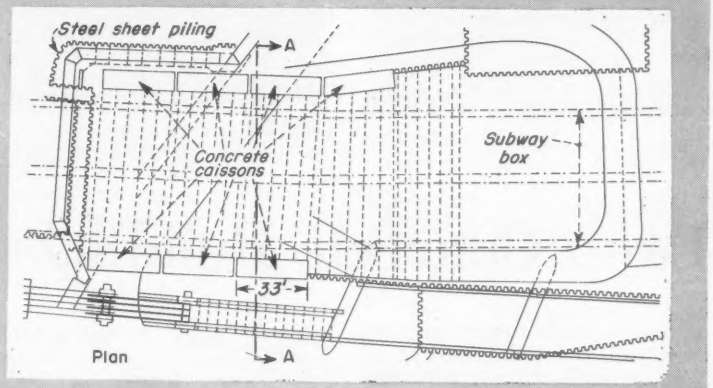
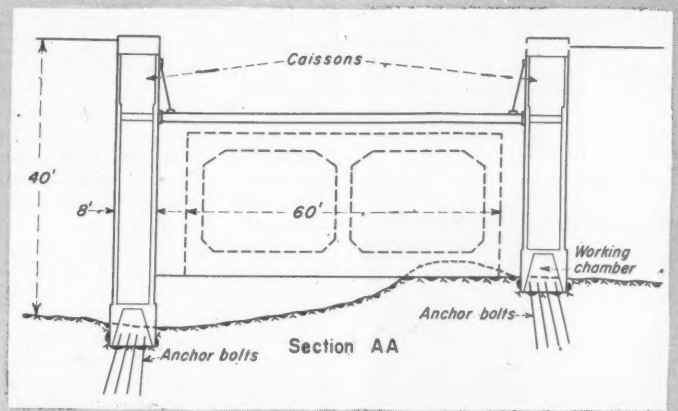


. . . Concrete caissons to bed rock



COFFERDAM EXCAVATION approaching completion in the bottom of the North River. Note irregular rock surface and, on top of rock at left, the protruding rock anchor bolts and the concrete toe wall holding the steel sheetpiling.





CONCRETE CAISSONS formed the walls of the cofferdam in a section under the river where the depth to rock was about 50 ft. Bolts drilled into the rock from the bottom of the working chambers anchored the bases of the caissons.

necessary that the holes be parallel.

The anchor bolts used were high tensile bars 1 in. in diameter and 20 ft long, prestressed to 20 tons. In addition to these bottom anchorages, steel girder struts were placed across the upper part of the cofferdams.

The spaces between the caisson ends were injected with cement grout to form a tight joint.

Complete Line of Homelite Carryable Construction Equipment Now Available

Self-Priming Centrifugal Pumps . . . Carry these lightweight, dependable pumps anywhere. Non-clogging design . . . 28 foot suction lift . . . capacities up to 15,000 g.p.h. . . . sizes from 1½" to 3". Diaphragm pump also available.

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PORT CHESTER, NEW YORK

At first they didn't succeed—in blasting three 8 story apartment houses into smithereens to clear a site for the State Department's new office building—but they tried, tried and tried again. Finally . . .

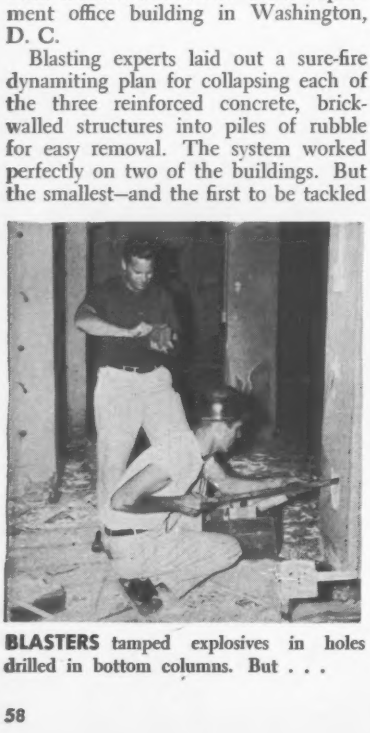
READY for a fifth try, one of the three buildings on the Washington, D. C., site had d down i

Explosives Drop Concrete Buildings In Nea

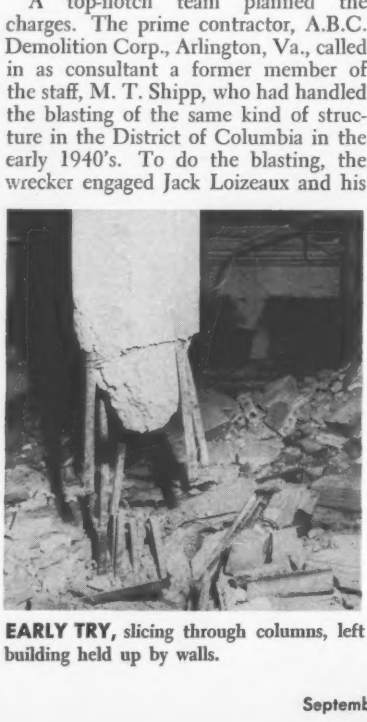
Demolition crews met a job to test their mettle when they undertook to clear three 8 story apartment houses from the site of the new State Department office building in Washington, D. C.

Blasting experts laid out a sure-fire dynamiting plan for collapsing each of the three reinforced concrete, brick-walled structures into piles of rubble for easy removal. The system worked perfectly on two of the buildings. But the smallest—and the first to be tackled—amazingly withstood four blasts, each of which should have been able to fell it. The obstinate structure finally succumbed to a fifth round of charges.

A top-notch team planned the charges. The prime contractor, A.B.C. Demolition Corp., Arlington, Va., called in as consultant a former member of the staff, M. T. Shipp, who had handled the blasting of the same kind of structure in the District of Columbia in the early 1940's. To do the blasting, the wrecker engaged Jack Loizeaux and his Burnbrae Drilling & Blasting Co., of Towson, Md.



BLASTERS tamped explosives in holes drilled in bottom columns. But . . .



EARLY TRY, slicing through columns, left building held up by walls.

• **Blasting plan**—The blasters planned to collapse each building inward. Build- No. 1 was first stripped to the bare shell of concrete frame and brick-and-tile exterior walls. Then, the wreckers bared the concrete of about 30 basement columns and cut their reinforcing bars. Next, they drilled a blast hole in each column to a depth a few inches beyond the center for loading with dynamite. (The columns ranged in size up to 26x30 and 30x30 in.)

To determine the charge needed to sever them, Loizeaux test-blasted a couple of columns. One stick of dynamite proved to be about right.

Loizeaux loaded the columns to be fired in a sequence of about seven delays, starting with the inner columns and working out to the perimeter walls. All basement windows were covered to contain the concussion.

• **What happened?**—When the first round was fired, the 40 x 160 ft building dropped about 3 ft but remained standing, with little evidence of damage to the exterior walls. These walls, in fact, were supporting the building so sturdily that the severed interior columns, on later blasts, dropped almost vertically

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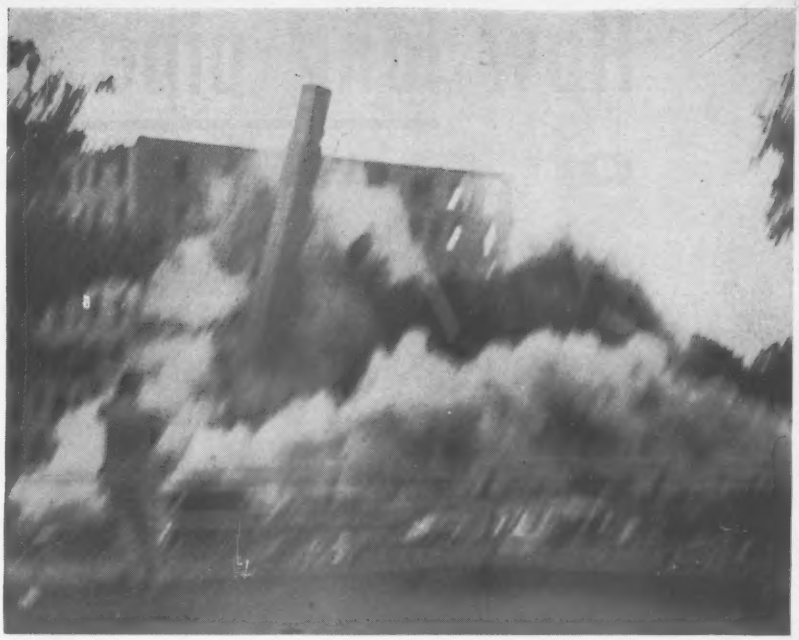
had dropped merely a few feet straight down in the first four blasts.



GOING down, the obstinate building finally drops in a heap on the fifth try, giving way to improved techniques the blasters developed after their earlier unsuccessful experience.

In Neat Piles

and rested on their battered stumps.

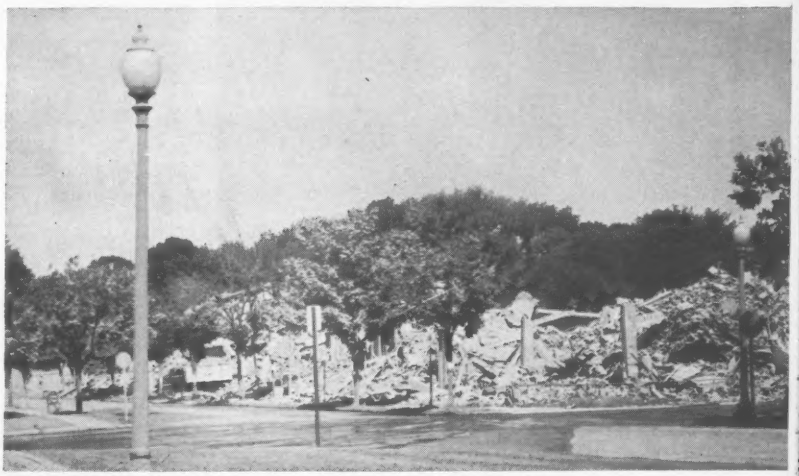
With the columns cut and hanging after the first round, the dumb founded blasters attacked the stubborn perimeter walls—solid brick in the basement. The wreckers knocked out part of the 40-ft rear wall in an effort to collapse the building in that direction.

Nevertheless, a fairly heavy charge used in the second blast merely dropped the interior columns 3 ft more and tilted all floors of the building inward.

Two more shots were placed and fired in the basement walls before the crew called it quits for the day. Each blast caused some settlement of the building but little disintegration. The third blast bulged the building walls and pushed out the top of the front wall about 4 ft. The fourth blast dropped the building again, for a total of 7 ft in all and pulled the front wall back into place. The structure looked as solid as ever.

"You can't believe it even when you see it," the blasters remarked, as they observed the building rebound into an upright position after repeated explosions. Back they went for still another try. Success was achieved on the fifth attempt.

This blast consisted of a relatively light round of charges in first-floor columns and perimeter walls. The explosion leveled the building for loading



GONE, after a couple of more blasts, the three apartment houses were reduced to rubble, easily removed by shovel and crane.

by shovel and crane, after some cutting of reinforcement in the columns and beams for handling.

• **Lesson learned**—Building No. 1 taught the wreckers a lesson on the toughness of the masonry construction in the three apartment houses. In the two remaining buildings, Loizeaux placed column charges not only in the basement but also in the first story in columns that were likely to cause trouble. With proper timing of the explosion of the charges, these buildings came down as planned with one blast apiece. (One was rectangular, about 130x105 ft, with an inner court, while the other was E-shaped, with maximum dimensions roughly 180x100 ft.)

In all, the wreckers removed 14,000 cu yd of rubble and completed the job 45 days ahead of the 120 day contract time limit. Because of the size of the job, A.B.C. took in as joint venturer the Ace Wrecking Co. of Washington. For A.B.C., the work was directed by Said Haddad, president, and Lester Leopold, vice president.

The State Department Building to be erected on the site will be 5 stories high and cost $54.7 million (ENR Jan. 10, p. 104).

How long pipe lengths pay on many construction

Armco Pipe for Foundation Piling, Subdrainage, Sewers, Water Lines, Stream Enclosures and Other Drainage Jobs Can Eliminate Construction Steps, Reduce Joint Requirements, Speed Work and Cut Costs—Thanks to LONG LENGTHS . . . Here's How:

Expressway Contractor Lays Subdrainage Pipe 20 FEET AT A TIME

Two men install long, yet easily handled, lengths of Armco Perforated Pipe for subdrainage on a cut section of an important expressway. Compare this simple installation with the number of joints and number of sections handled with short-section pipe.

66-Inch Sewer Goes In At Rate of 200 Feet Per Day

More than 200 feet per day was the lay, line and join speed on this sewer project involving Armco SMOOTH-FLO® Sewer Pipe. Lengths of 18 and 20 feet are easily handled, even in large diameters like this. Joints are a matter of a few bolts. Result is speed and low cost. Fewer joints pay dividends in operation over the years too. There's less chance for infiltration or expensive joint maintenance.

Armco Construction

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50-Foot Lengths of Armco Water Pipe Eliminate 26 Joints Every Mile

The city of Tuscaloosa, Alabama, saved 26 joints in each mile of this five-mile-long raw water line by using 50-foot Armco Welded Steel Pipe instead of 40-foot pipe. The savings are even greater when compared with shorter length pipe.

Write for details about Long-length Armco Pipe for your construction needs

Just tell us about your requirements and we'll send appropriate data. Also ask about Armco Steel Buildings, Guardrail, Steel Sheeting, Bin-Type Retaining Walls, Water Control and Sewage Gates or other Armco Drainage and Construction Products. Armco Drainage & Metal Products, Inc., 5637 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

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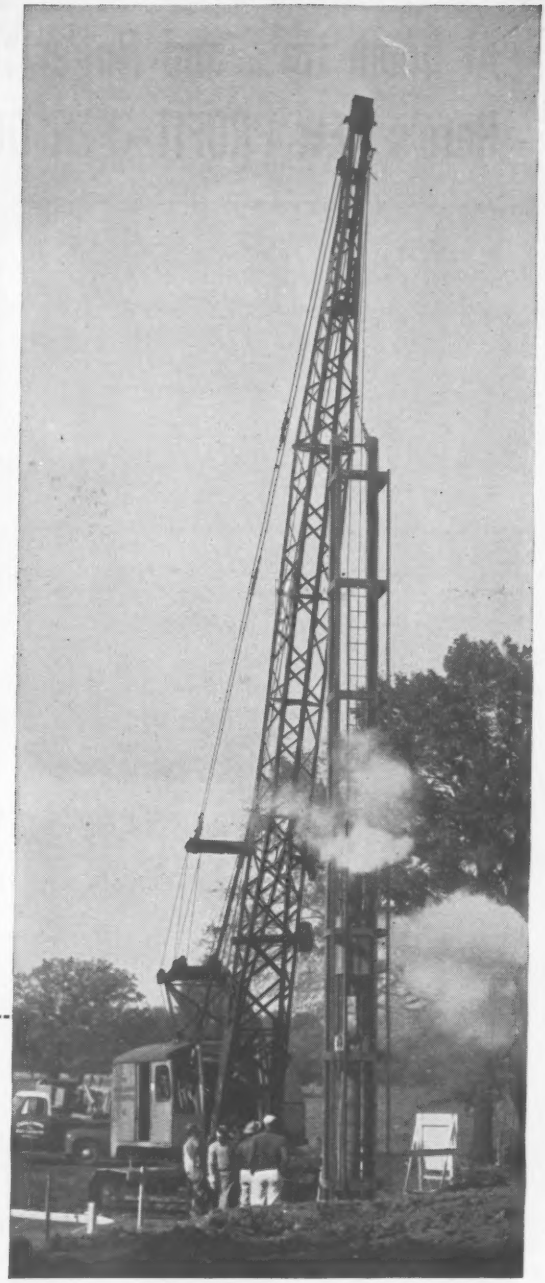
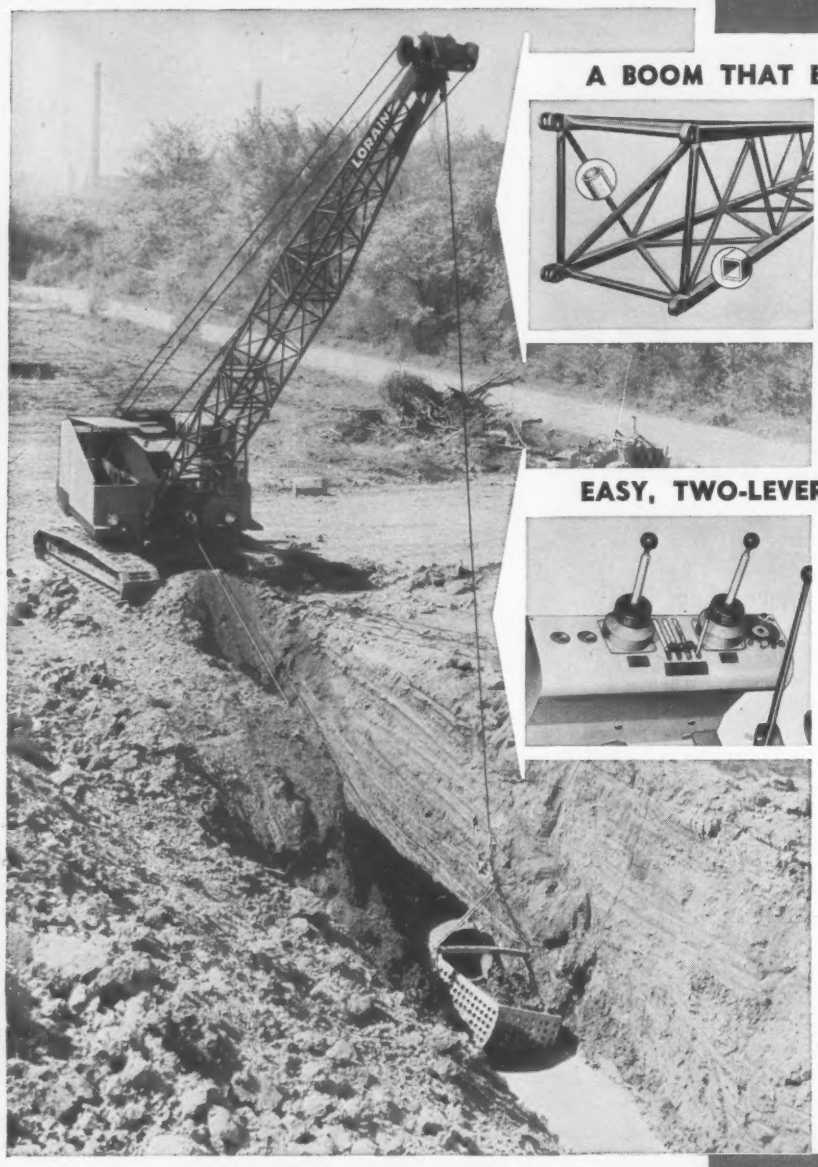


Long Pipe Piling Lengths Reduce Splices, Speed Driving

Lengths of Armco Pipe Piles and Pile Shells are limited only by shipping and handling requirements. Pipe as long as 90 feet was supplied for the Straits of Mackinac Bridge during an early stage of construction. Long lengths mean fewer splices to make; fewer interruptions to driving operations. Yet, when sections do have to be joined, uniform roundness makes line-up and welding easy.

At boom tip...and finger tip... Here's NEW PROFIT–PERFORMANCE

HEAVY-DUTY ¾-YD. LORAIN-26



A BOOM THAT BOOSTS PRODUCTION

Stronger—yet lighter—the weight-saving design of the LORAIN SQUARE-TUBULAR-CHORD BOOM* increases lifting capacities and permits greater operating ranges. Continuous, round tubular lacing, welded to the square chords at common points gives a "banded" effect for added strength. Pin-connected for easy insertion of center section.

EASY, TWO-LEVER POWER CONTROLS

This new Lorain exclusive —two-lever, "Joy-Stick" power control reduces operator fatigue, provides faster, smoother operation, increases production. Full "feel" of machine is retained.

Send for LORAIN-26 catalog

Yours for the asking is a 24-page catalog, detailing the many profit-making advantages of the heavy-duty ¾-yd. Lorain-26. Ask your Thew-Lorain Distributor for a copy or write direct.

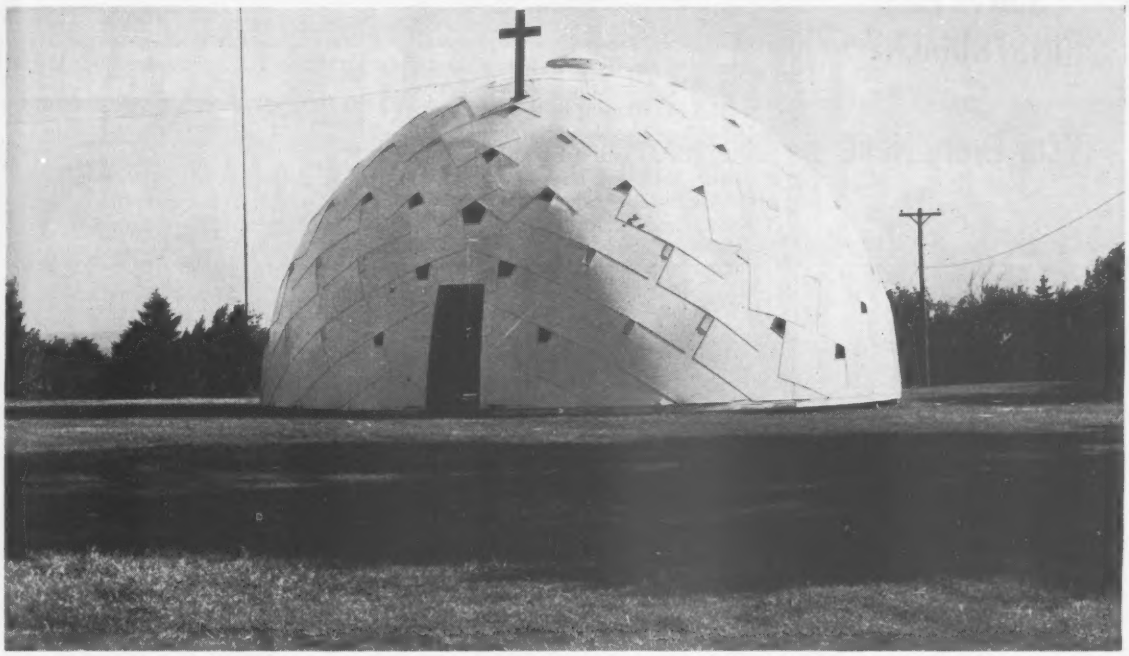
U.S. and foreign patents applied for.

Feature-packed! That's the heavy-duty ¾-yd. Lorain-26. Hydraulic power control of crawler . . . hydraulic coupling or torque converter power-take-off available . . . truss-type turntable bed . . . and many others. This versatile performer operates profitably as a shovel, dragline, crane, clamshell or hoe. It's a real performer—has the brawn to tackle the toughest digging or lifting jobs. Contact your nearby Thew-Lorain Distributor to "action-test" the Lorain-26.

THEW LORAIN®

THE THEW SHOVEL CO.

Lorain, Ohio, U. S. A.



Hemispherical in shape, 39 ft in diameter . . .

Plywood Dome Is All Skin, No Frame

A 1,200 sq ft demountable and portable building with no frame has been demonstrated by an Iowa manufacturer. The structure consists of ¼ in. plywood sheets and 2 x 2 in. wood strips bolted together to form a hemispherical dome 39 ft in diameter.

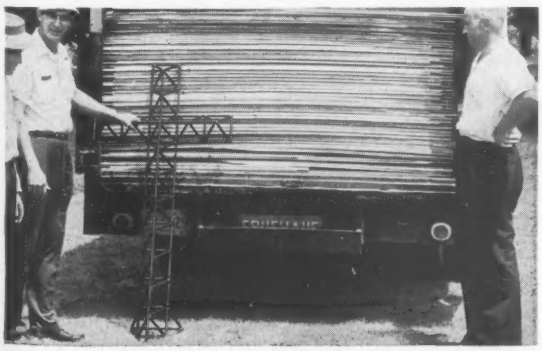
The pictured model, erected for purposes of the demonstration, is owned by a Catholic missionary order, the Columban Fathers. They plan to ship it to southwest Korea and use it as a temporary church building at their leper colony in Naju. Also destined for Korean service is a 60 ft model now being laid out in ⅜ in. plywood.

Materials for the 39 ft dome cost $2,300, weigh 3,500 lb and fit into a package 4 ft wide, 6½ ft long and 5 ft high. The principal item is 134 sheets of ¼ in. exterior-grade plywood 4 x 6½ ft.

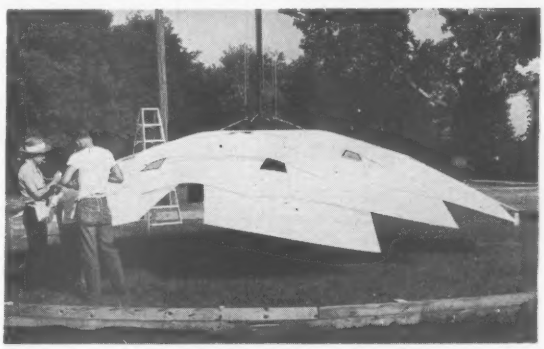
Holes in the plywood are predrilled in patterns such that the sheets, when correctly lapped and bolted together, assume the desired spherical shape. Three templets sufficed for the entire building.

Most sheets are rectangular. However, a few at the bottom of the building and those about the ventilator opening at the crown required cutting.

Assembly of the structure was begun with the crown components, suspended near ground level from a steel mast. As plywood sheets and 2 x 2 in. x 3 ft wood stiffeners were bolted together to com-



DOME MATERIALS make package 4 ft wide, 6½ ft long and 5 ft deep. Main item is 134 sheets of ¼ in. plywood 4 x 6½ ft.



DOME ASSEMBLY, hanging from temporary mast, was begun at crown, lifted to keep perimeter at convenient working level.

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and There's a KERN REPRESENTATIVE in Your Area... *to Serve* YOU!

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BY EXPERT SWISS INSTRUMENT TECHNICIANS

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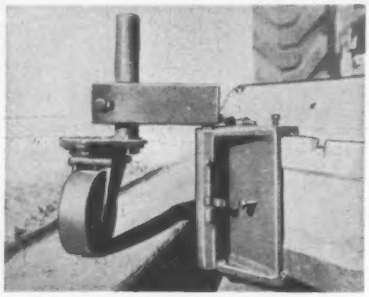
KERN INSTRUMENTS INC.
120 Grand St., White Plains, N.Y.

plete a portion of the surface, the developing dome was hauled upward a few feet with block and tackle. Then more sheets were added and the lifting operation was repeated. Upon completion of the dome, the mast was removed.

The arrangement of the sheets leaves 107 polygonal openings in the dome surface. Glazed with translucent reinforced plastic, these will serve as windows.

When the building is erected in Korea, it will be weatherproofed by bedding the plywood sheets in a rubber mastic and then covering the entire dome with a plastic coating. Inside treatment will consist only of covering the projecting bolts with wood balls, a practical measure to prevent snagging as well as a decorative one.

Buckminster Fuller, a principal in the manufacturing firm and architect of numerous other spherical buildings, designed the dome. PLYDOMES, INC., DES MOINES, IOWA.



Motor Grader Attachment Speeds Finish Grading

The "Swanson Micro-Grader" has been developed to add accuracy and speed on finish grading jobs.

Adjustable for depth, from minus 2 in. to about 9 in. plus, the Micro-Grader is a heavy steel wheel that can be adjusted to ride on curb, form edge, adjoining pavement or any other straight edge to give the grader blade its exact level for a grading pass. SWANSON MANUFACTURING CO., 515-63RD ST., SAN DIEGO, CALIF.

Heavy Duty Slurry Pump Features Flexible Lines

A heavy duty full-lined sand and slurry pump, the Krogh Model 600, is equipped with liners that are replaceable and interchangeable with either hard metal or rubber. The pumps range in size from 2 to 8 in., with capacities of from 20 to 2,000 gpm up to 100 ft head, according to the manufacturer.

The liner flexibility is said to make the pump suitable for any type of slurry pumping problem, allowing changes to be made for different operating conditions without expensive pump modifications or installation changes. KROGH PUMP & EQUIPMENT CO., INC., 515 HARRISON ST., SAN FRANCISCO 5, CALIF.

Tracing Paper Allows Drawing on Both Sides

A new double-surfaced tracing cloth permits drawing on both sides. Unchanging parts of a drawing can be drawn on one side and details that may be subjected to repeated changes can be drawn on the other side. Erasures are made easily on the detail side, the manufacturers claim, without damage or danger of removing information from the other side.

The cloth is impervious to perspiration and water stains and can be cleaned with common solvents. It can take pencil lines as hard as 9H and repeated erasures without surface damage.

The cloth is available in all sheet sizes, and in 20 yd rolls, 30, 36, or 42 in. wide. CHARLES BRUNING CO., INC., 4700 W. MONTROSE AVE., CHICAGO 41, ILL.

Light Wood Target Rod Locks in Any Position

An engineers' and builders' rod and target is made of three pieces of seasoned magnolia wood which is light, strong and will not warp, according to the manufacturer. Each section is 2¼ in. wide, 1⅛ in. thick and 5 ft long. The rod has a 14 ft working surface when fully extended.

Graduations are in feet, inches and eighths on replaceable tape curved to prevent reflection. Foot numbers are in red, inches in black. The rod extends easily and locks in any desired position with a bracket set in the rod, according to the manufacturer, and there are no outside obstructions, making it smooth and easy to carry. DAVID WHITE INSTRUMENT CO., 2051 N. 19 ST., MILWAUKEE 5, WIS.

WATCH FOR FIRESTONE WHERE BIG PROJECTS BEAT SCHEDULES!

Firestone Rock Grips lead all tire choices for heavy equipment on all job conditions!

Firestone Tubeless Rock Grips save time two ways! Off-highway users make them their first choice of tires for beating downtime losses. They're top choice, too, when it comes to rolling heavy equipment over all types of terrain. Two great treads eliminate your need for changing tires to match the job. You get the *full flotation* you need for sand and soft stuff. And the same tread gives you the *armored grip* you want for hauls over rock or rubble. Safety-Tensioned *Gum-Dipped*® NYLON bodies, combined with specially compounded treads, defy cuts and slugging impacts. Ask your Firestone Sales Engineer about these heavy construction favorites. Contact him today—through your local Firestone Dealer or Store.

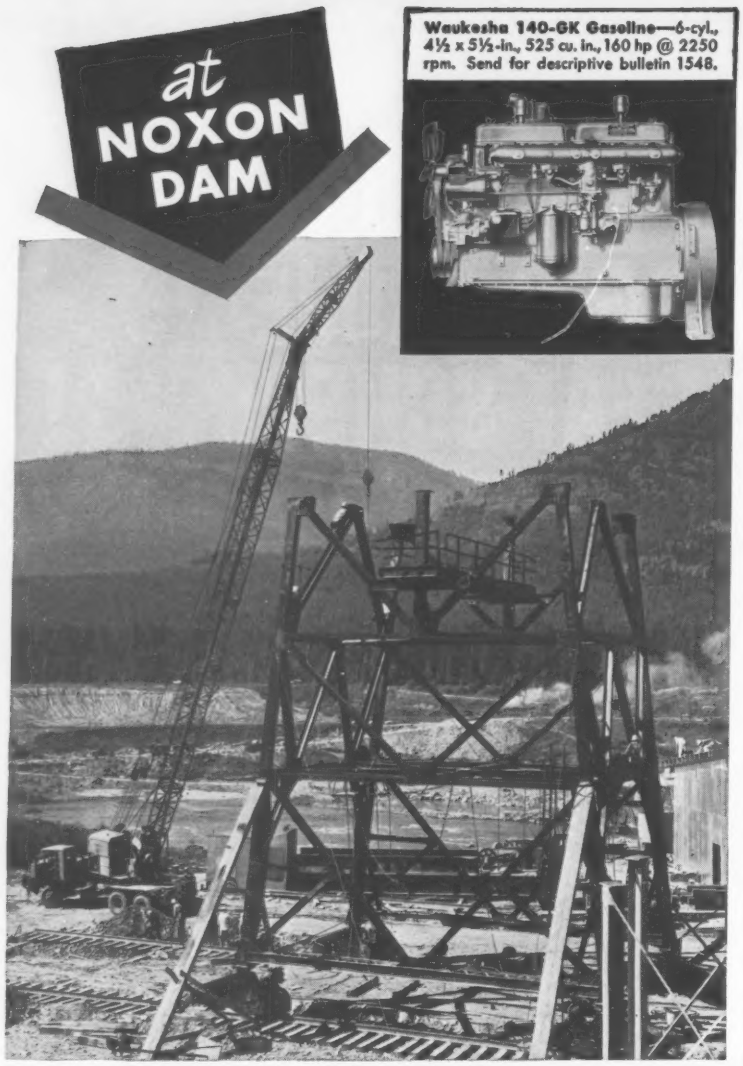
Enjoy the Voice of Firestone on ABC television every Monday evening.

ROCK GRIP WIDE BASE ROCK GRIP

Firestone

BETTER RUBBER FROM START TO FINISH

Copyright 1957, The Firestone Tire & Rubber Company



Waukesha 140-GK Gasoline—6-cyl., 4½ x 5½-in., 525 cu. in., 160 hp @ 2250 rpm. Send for descriptive bulletin 1548.

Morrison-Knudsen own and use Lorain Crane

powered by

WAUKESHA

For the Noxon Rapids Hydroelectric Project on Clark Fork River in western Montana—Morrison-Knudsen Co., Inc. of Boise, Idaho are building a concrete and earth fill dam, maximum height 190 ft. and about 5930 ft. long. About the busiest piece of equipment on the job is their Waukesha-powered Lorain MC 505-W mobile crane. After setting up a concrete batch plant, it is shown here setting up a two whirley crane plant. The Lorain's 140-GK Waukesha Engine gives it safe, steady power with ready reserve for heavy handling as well as fast power for speedy mobility.

353

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK TULSA LOS ANGELES

. . . Publications

Hot weather concreting—The reasons for cracks and ways to avoid them in hot weather concreting are given in a folder entitled, "Hot Weather Concreting". Tips on the proper handling, placing, finishing and curing of concrete are included. ALPHA PORTLAND CEMENT CO., 15 SOUTH THIRD ST., EASTON, PA.

Flow record—A 2 page looseleaf sheet describes a floatless system for transmitting water or waste flow measurement from a Parshall flume to a flow recorder. AED 831-35, FOXBORO CO., FOXBORO, MASS.

Valves—A new 244 page catalog covering Darling gate valves, check valves and fire hydrants is illustrated and diagrammed. Catalog 57 (as it is numbered) also contains engineering data, application tips, valve accessories information, and reference data on materials, specifications and standards. DARLING VALVE & MANUFACTURING CO., WILLIAMSPORT, PA.

Roof deck—A brochure containing properties, allowable loads, heat gain and loss coefficients and specifications for cedar and spruce roof deck is available from RILCO LAMINATED PRODUCTS, INC., W-891 FIRST NATIONAL BANK BUILDING, ST. PAUL 1, MINN.

Translucent soundsheet—Information on Soundsheet Translucent Acoustical Element, a new plastic laminate combining acoustical and illuminating properties, is contained in a 2 page catalog sheet. Sound absorption, illumination, cost installation and maintenance features and specifications of the soundsheet is described. CONTREX CO., BOX 29, CHELSEA 50, MASS.

Refractory mortars—Seven types of high temperature refractory banding mortars covering all possible requirements are described in a 4 page bulletin. Applications, mixing proportions and specifications are given. REFRACTORY DEPT., DENVER FIRE CLAY CO., 2301 BLAKE ST., DENVER 5, COLO.

Heating design data—A 71 page manual contains engineering information for determining proper application and capacity requirements of unitary or central heating plant systems. The guide covers survey, design conditions, transmission coefficients, heat loss calculations and piping sizes. Tables and charts are included for estimating heat loss and sizing of equipment. UNIT HEATER DEPT., CARRIER CORP., SYRACUSE, N. Y.

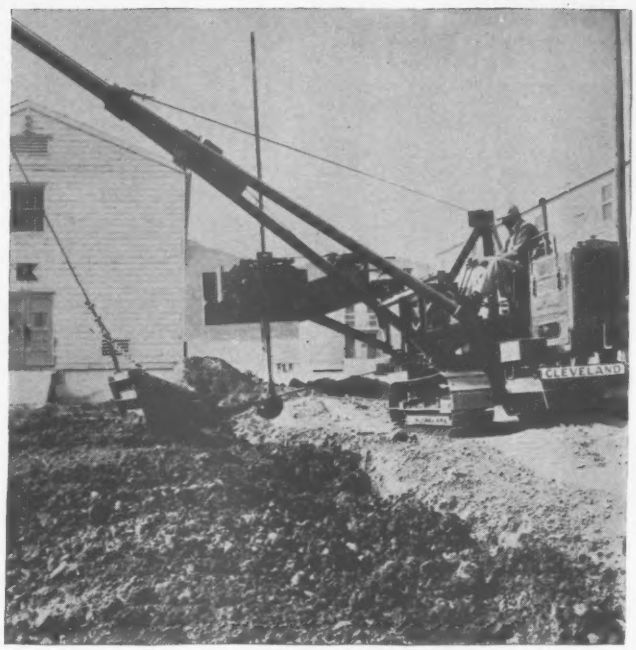
The CLEVELAND 80W replaces 6 men, 4 machines

...and does the job in half the time!

Don Rogers, superintendent of Charles Ramsey and Company of Fort Carson, Colo. has this to say about the performance of his new Cleveland Model 80W on a job of backfilling and compacting trench for the U. S. Army at Camp Carson:

"On this job, the 80W has replaced a large tractor, a 210 cu. ft. air compressor, two triple tampers and 6 men, and is doing the job in half the time."

"I'm paying this machine the supreme compliment of saying that it is the only machine I have ever seen that puts the dirt back in the ground as well as a Cleveland 140 trencher takes it out."



The CLEVELAND 80W

A SIDECRANE

- Lays Pipe — 30,000 ft. lb. capacity
- Power Boom — Up and Down
- 4 Line Speeds
- Long Reach — 21 Feet
- Sets Bends, Valves
- Unloads — Strings — Pulls Sheathing, etc.

A BACKFILLER

- 4½ Foot Scraper Board
- Backfills Clean
- Backfills Fast — 20 Passes Per Minute
- Stays Off Completed Work
- Backfills from Either Side of Trench
- Works Safer — Parallels Work
- Fits All Job Conditions

A TAMPER

- Fills and Tamps Simultaneously
- Meets Density Specifications
- Tamps From The Bottom Up
- Parallels Work — No Straddling
- Tamps Wider — Tamps Safer

ONE MACHINE...ONE OPERATOR...DOES IT ALL

Good Everywhere

THE CLEVELAND TRENCHER COMPANY

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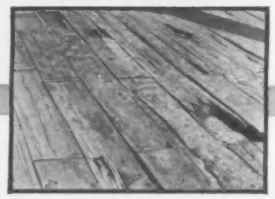
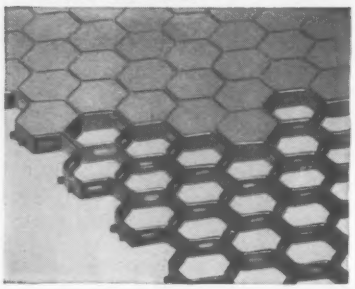
DO RUTS AND POTHOLES RUIN YOUR PLANT FLOORS?



The small hard wheels of heavy loaded fork lift trucks, hand trucks and impact from heavy falling objects often ruin industrial floors made of wood, asphalt or even concrete.



"Gridsteel" can take heavy abuse. It is made of steel bars on edge, joined together in a hexagonal mesh pattern. Steel takes the wear. No potholes or ruts can form because any crack which might occur in the fill cannot spread beyond the area of a single steel mesh.

Write today for complete information. Ask for catalog on "Gridsteel" floor armor.

✦

Manufacturers of Riveted, Welded, Pressure-Locked Gratings in Steel, Aluminum and other metals.

"A Fitting Grating for Every Purpose"

IRVICO

IRVING SUBWAY GRATING CO., Inc.
Originators of the Grating Industry

Offices and Plants at
5063 27th St., LONG ISLAND CITY 1, N. Y.
1863 10th St., OAKLAND 23, CALIFORNIA

Sleds Move Equipment Through Swamp

When mud and quicksand barred the movement of material and heavy equipment to the site of a $500,000 power line foundation project at Tonawanda, N. Y., the contractor built sleds to carry the equipment and slid his way to the job.

The sleds were fabricated and brought into use by the contractor, Fink Construction Co. of Buffalo, N. Y., when a swamp running for several miles along the power line right-of-way of the Niagara Mohawk Power Corp. failed to dry up after the spring rains.

One big sled, weighing 15,000 lb, was used to move a 20 ton crane, well points, pumps, timber and other supplies to the site. The sled is 26 x 10 ft. in plan and 22 in. high. It is made of four sections of 12 in. steel pipe welded to a framework of 8 in. H-beams and covered with a flooring of heavy oak planking.

Drawn by two crawler tractors in tandem, the sled carries 6 cu. yd. concrete mixer trucks through almost a mile of swamp. Each trip takes about 18 minutes. Five smaller sleds, 10 x 18 ft. and 24 in. high, are used to haul lighter supplies.

Special Service Truck Handles a Fleet

A special mobile maintenance truck is now operating to service the entire fleet of 171 earthmoving and paving machines of Northwest Construction Co., Seattle.

This is a compact, multi-purpose vehicle equipped to dispense grease, oil, water, gasoline, diesel fuel and air wherever needed in the field. It was developed by Homer Baer, maintenance foreman.

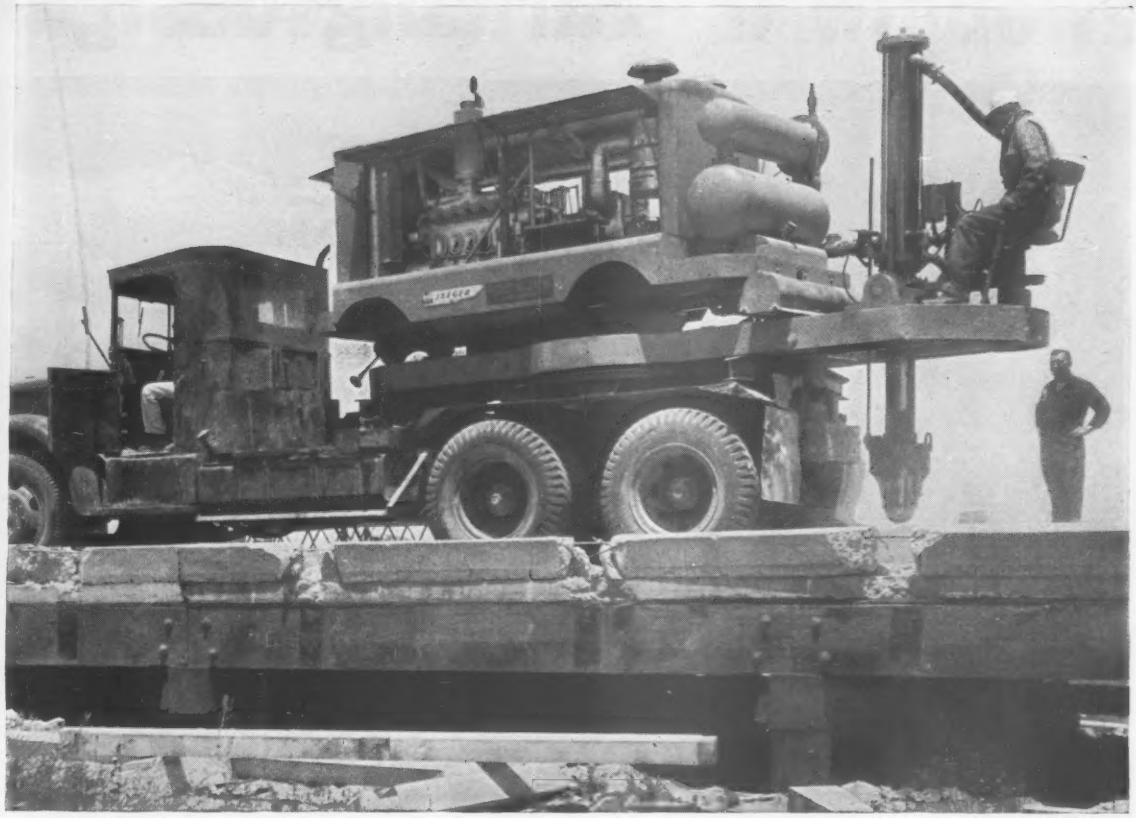
Nerve center for the mechanized service station is a receiver-mounted 36 cfm compressor with a 200 psi pressure rating, which supplies the air that activates the entire lubrication system. It is operated by a full torque power takeoff, driven through a special transfer case by the truck engine. The truck is a standard make with front-wheel drive and a specially built body.

Air from the compressor is used to operate two high-pressure grease pumps, which supply track roll grease and chassis lubricant. It also actuates a low-pressure pump that dispenses gear oil, and a transfer pump for handling motor oil.

Five 40 ft hoses on reels across the back of the truck are used to supply most lubrication needs, including oil for crankcases, grease for bearings and rollers.

Hoist oil and water for cooling systems are supplied through spigots, and replacement filters, fittings and miscellaneous parts also are carried for emergency repairs.

While the air from the compressor operates all of the pumps, it also pressurizes four 50 gal tanks containing the fuels, water and hoist oil.



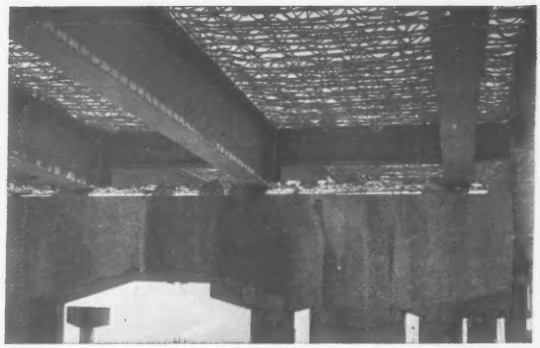
HAYMAKER: Big 750-lb. hammer, powered by Jaeger "600" rotary, delivers 22,000 ft. lb. wallop; breaks old concrete on San Francisco-Oakland Bay bridge toll plaza. Slab was 6" thick, with double curtain steel reinforcement.

1-2 and out with Jaeger air

On Oakland Bay bridge improvement job, this Jaeger "600"-powered pavement breaker delivered a neat knock-out punch. Concrete was jarred completely clear of double curtain reinforcing steel, eliminating usual nasty clean-up job. Hefty 22,000 lb. wallops (45 to 60 a minute) did it.

Keeping full air pressure behind the 750 lb. hammer was easy for the Jaeger 600 cfm rotary. Its Model 6-71 GM diesel engine never ran faster than a fuel-saving, wear-saving 1650 rpm. Other "600" compressors, with the very same engine, need 100 to 150 rpm faster full load speed.

You get this same slow-speed, efficient performance, saving fuel, fpm of engine piston travel and thousands of compressor revolutions per hour, in Jaeger 125, 250 and 365 cfm compressors, too. For example, the Jaeger "365", with 50 cfm more capacity than "old standard" 315 cfm units, operates at 1700 rpm instead of 1800. See your Jaeger distributor for full data or send for Catalog JCR-5.



KNOCKOUT: Double curtain reinforcing steel is completely cleared of concrete by the breaker—a clean job that saved time and cost. With Jaeger air power, special heavy duty tool broke up as much as 700 cu. yds. of reinforced concrete a day.

THE JAEGER MACHINE COMPANY

200 Dublin Avenue, Columbus 16, Ohio

PUMPS • CONCRETE MIXERS • SPREADERS • FINISHERS • TRUCK MIXERS

Striking design wi

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New

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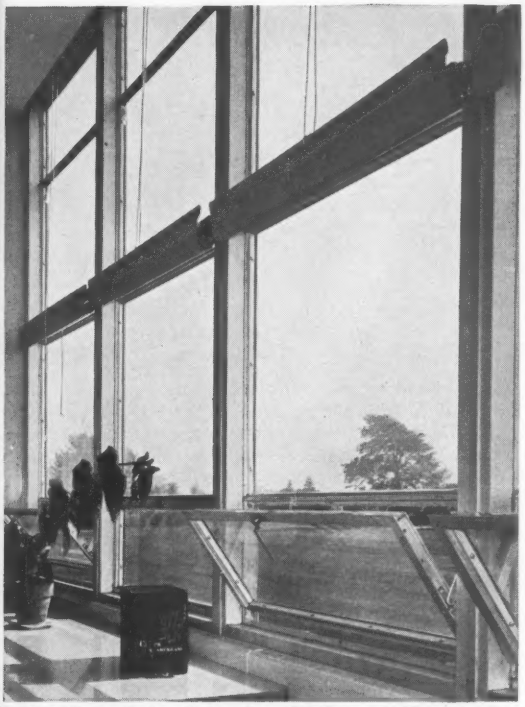
n with LUPTON metal windows

Penncrest Senior High School, Lima, Pa. Architects & Engineers: The Ballinger Co., Philadelphia, Pa.; General Contractors: Wallace Engineering & Construction Co., Bryn Mawr, Pa. All photographs by Cortlandt V. D. Hubbard.

New Penncrest Senior High School at Lima, Pennsylvania, matches bold design with maximum light and air



LUPTON Master Projected Aluminum Windows provide all-weather ventilation, deflect drafts, and provide various degrees of opening. Simplicity of hardware makes them easy to use, inexpensive to maintain.

A brilliant illustration of the harmony of fresh and forceful design with functional need is shown in the modern Penncrest Senior High School at Lima, Pennsylvania.

The use of LUPTON Master Projected Aluminum Windows helped make this "dream school" a practical reality. The strong horizontal lines and narrow mullions of these windows integrate exactly with the design intention. Their unobstructed areas, all-weather ventilation, lower initial cost, and lower maintenance costs make them a perfect choice for practical function.

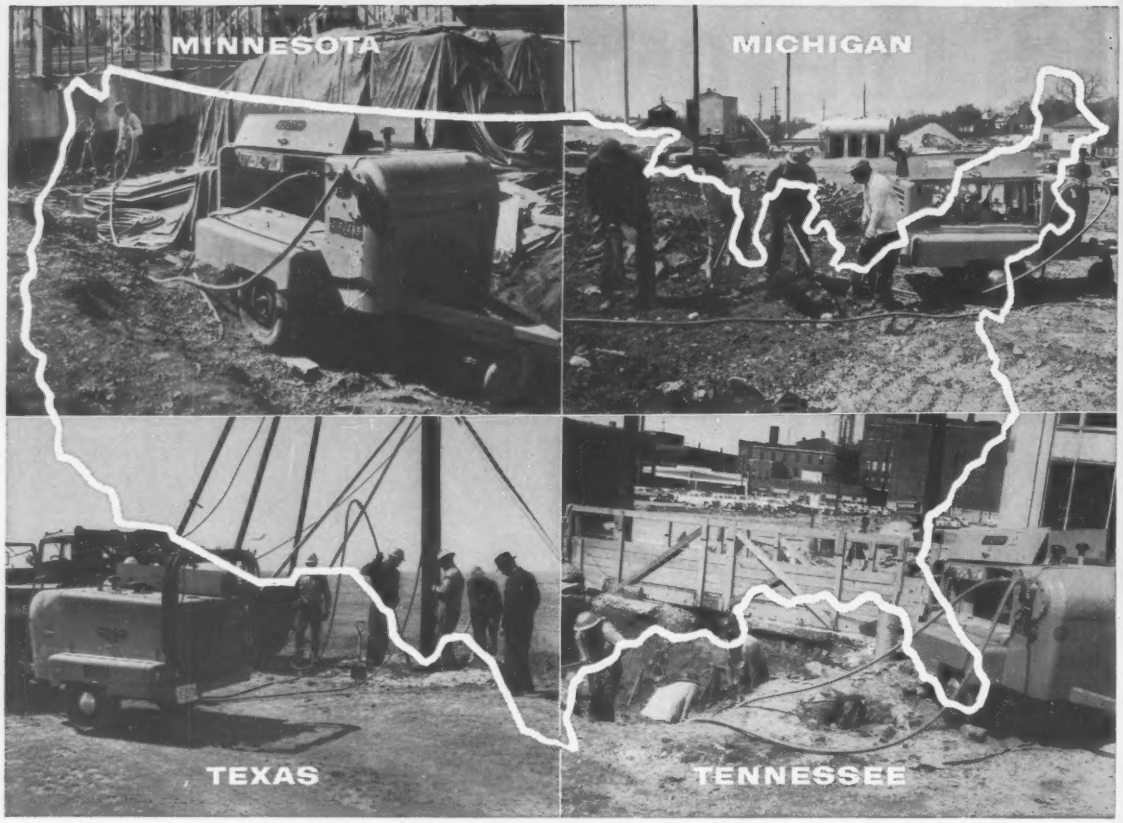
For more than 75 years, LUPTON has been providing the finest metal windows for use in schools, hospitals, and other modern buildings designed by the country's leading architects. You'll find complete information in the Flynn catalogs in Sweet's *Architectural File*. To locate your nearest representative, look for the name LUPTON in the Yellow Pages under "Windows—Metal." Or write or wire.

LUPTON

METAL WINDOWS • CURTAIN WALLS

MICHAEL FLYNN MANUFACTURING COMPANY

MAIN OFFICE AND PLANT: 700 E. GODFREY AVE., PHILA. 24, PA.



JOY 125 cfm AIRVANE ROTARY

Your *dependable* Portable . . . on the job nationwide

For the work-hard-and-move-fast jobs you need a really *reliable* portable compressor. And that means the JOY Rotary RP-125. . .it's proving every day, all over the country, that it can handle your jobs faster, with minimum maintenance and downtime.

RELIABILITY The Joy RP-125 gets on the job quick and *stays* with it. No complaints about the weather—hot or cold. This rugged machine was designed and built to supply air dependably anywhere in the country . . .a real heavy-duty machine that can stand up under tough service.

ECONOMY Here's a Rotary that takes the bumps, tows like a shadow and saves fuel by matching output to demand from 0 to 100% of capacity. Set the dial on the new *Servair Demand Control* . . . it's simple, foolproof . . . and the Joy RP-125 delivers the pressure needed. A real plus: the exclusive *Joy Thermal By-Pass Oil Circulating System* eliminates time-waste with a fast warm-up; provides warm oil at the start—no need to run the machine for several wasted minutes in cold weather.

ACCESSIBILITY Here's an attractive, clean-styled Rotary Portable that you can get at, service easily, without skinned knuckles and bruised shins.

● If you want top air-supply efficiency on your small jobs, now is the time to see the Joy RP-125. Talk to the Joy Distributor nearest you, or write to ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

WSW C6629-200

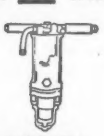
WRITE FOR FREE BULLETIN 200-24

JOY . . . EQUIPMENT FOR CONSTRUCTION . . . FOR ALL INDUSTRY

PORTABLE AIR COMPRESSORS

WAGON DRILLS

ROCK BITS


HAND-HELD ROCK DRILLS

DAM IS COMPLETED and the first half of a 320,000 kw powerhouse is under construction at the Roxburgh hydroelectric project on the Clutha River.

THREE SPILLWAY CHANNELS (left), designed to discharge 150,000 cfs, are separated for their entire length by training walls.

Dam Finished "Down Under"

One of the more notable hydroelectric projects in the Southern Hemisphere is well on its way toward completion in New Zealand. At Roxburgh on the Clutha River in South Island, a 1,200 ft long, 250 ft high concrete dam is finished and half of a 320,000 kw powerhouse is in production. The final four turbines and generators are to be on the line in 1962.

The dam is a straight gravity section 200 ft thick at its base and 35 ft wide at the crest. It stands 180 ft above the riverbed.

The spillway channels are somewhat unusual in that they—three of them—are separated for their entire length by training walls. The channels are 1,800 ft long and total 100 ft in width. During construction, they served for river diversion, and now also carry discharge from sluice through the dam below the spillway crest.

Spillway gates are quite large, 50 ft wide and 45 ft high. They each weigh 135 tons. Sluice gates, submerged 170 ft, are of a special design. Their rise and fall is controlled by self-contained ballast chambers which operate in the fashion of a submarine. The sluice gates weigh 80 tons each.

The spillway is designed to discharge 150,000 cfs. Mean flow of the Clutha is 17,700 cfs.

During excavation for the dam foundation, a deep narrow gulley in the river bed had to be cleaned to solid rock and then filled with 15,000 cu yd of concrete placed continuously. A special mix, containing pozzolanic materials and only 1½ bags of cement per cu yd, was placed in ten around-the-clock days.

Roxburgh's powerhouse now contains four 56,000 hp turbines and four 40,000 kw generators. Orders have recently been placed for the remaining four units to bring powerhouse installed capacity to 320,000 kw.

Currently New Zealand's largest hydro project, Roxburgh is being built by the national Ministry of Works for an estimated $73 million. General contractors at the finish of Stage I construction (160,000 kw) were Downer and Co., Ltd., New Zealand, in association with Holland, Hannen & Cubitts of Great Britain and Conrad Zschokke of Switzerland.

Africa Road Congress

Heavy truck route urged for South African trade

The African Regional Road Congress has called for completion of the Cape Town-Nairobi road within six years. Meeting at Salisbury, Southern Rhodesia, the Congress proposed a heavy duty road with moderate curves and gradients suitable for trucks and trailers.

Financing of the project should be done principally through special loans, the Congress specified in a resolution, so that the estimated $40 million required for the project can be obtained from sources outside the participating countries.

The resolution also urged that the governments concerned:

- Provide for urban roads along the Cape Town-Nairobi highway where necessary and to supply funds required.
- Discuss the possibility of inter-territorial agreement for standardization of legislation, licensing, custom and immi-

MORRIS meets the CHALLENGE of INDUSTRY'S NEW FRONTIERS

No Matter What Your Present or Future Heavy Pumping Problems Are . . . Morris Can Satisfy You NOW!

The new Morris Type RX Slurry Pump is specifically engineered to handle the viscosities, densities and special characteristics of the slurries and sludges developing from industry's ever-advancing products. It is engineering attuned to the future . . . designed to meet the demands of a towering tomorrow.

Rugged, Dependable, Trouble-Free; Operates With Minimum Attention . . . Cuts Maintenance Costs!

The new Morris RX is designed for performance perfection under all conditions, including heavy, coarse, fine slurries, dispersions and sludges. Operates at low speeds; quickly dismantled for inspection, avoiding lengthy lay-up time.

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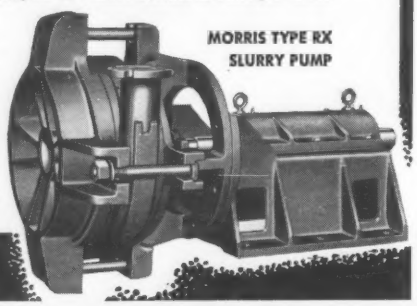
Baldwinsville, N. Y. *Sales Offices in Principal Cities*

FREE SERVICE: Morris engineers will gladly recommend the custom-made pump best suited to your needs. Send necessary data today.



MORRIS TYPE RX SLURRY PUMP

MORRIS CENTRIFUGAL PUMPS

gration formalities with respect to road transport along the route.

• Develop adequate feeder roads as soon as possible.

It was agreed that roadbuilding should precede, not follow, land area development and that the road construction should be started now before further development takes place.

V. R. Atkinson, president of the South Africa Federated Chamber of Industries, estimated trade could increase to $700 million a year by 1966 between South Africa and neighboring territories if a high standard road were built.

The Congress represented road federations of East, Central and South Africa and was sponsored by the International Road Federation. Some 140 delegates and observers from areas through which the highway will lie attended.

Reputation, Efficiency Win Australian Contract

Utah Construction Co., which has received an $8.2 million contract to build the King Street Bridge in Melbourne got the job principally because of the excellent reputation enjoyed by U. S. firms "down under," according to Australian sources.

The Utah bid was one of seven, and was among the highest submitted. Other bidders included a number of local firms, one of which was about $1.5 million below Utah's successful tender.

Officially, the award went to Utah because its design for a bridge over the Yarra River was judged superior to the others submitted to the Country Roads Board. However, local observers said that the major factor probably was the "magnificent" reputation enjoyed by U. S. construction companies for speed and efficiency.

The new bridge will be 410 ft long, 149 ft wide, with the central portion continued as an elevator structure fot an additional length of 1,880 ft.

$16.5 Million to Be Spent By Argentina for Sanitation

A $16.5 million program for improving the water and sewerage systems of three Argentine provinces has been announced by the respective provincial authorities.

This sum will be spent in the provinces of Santa Fe, Catamarca and La Rioja, from an allocation of $166.7 million (3,000 pesos) in the national budget for sanitary services in the nation over the next five years.

Over half of the $16.5 million will be spent in Rosario, the country's third largest city.

***CONTRACTORS!** There's a lot of useless back-breaking digging involved in uncovering new construction business . . . unless you have someone breaking ground for you . . .*

We help do your spadework for finding business

Trying to uncover new construction business by looking everywhere is the costly way to get the jobs you want. The best, most economical method is to let Dodge Reports pin-point exactly the kind of construction activity you're looking for right in the area you serve. If you'd like to see how this timely, accurate daily report service can get you more and better business, just read, then mail this coupon today.

TO: **DODGE REPORTS,** DEPT. 107, 119 WEST 40th STREET, NEW YORK 18, N. Y.

Yes! I'd like to see how to get more business by knowing in advance who's going to build, what, when, where.

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I'd like to see some Dodge Reports, and I'd like a copy of your booklet that tells how to use this accurate, daily, up-to-the-minute construction news service.

I understand that I can pick just the area in the 37 Eastern States and the type of construction activity that interests me. Also, that I won't have to wade through mounds of data to find the information I need.

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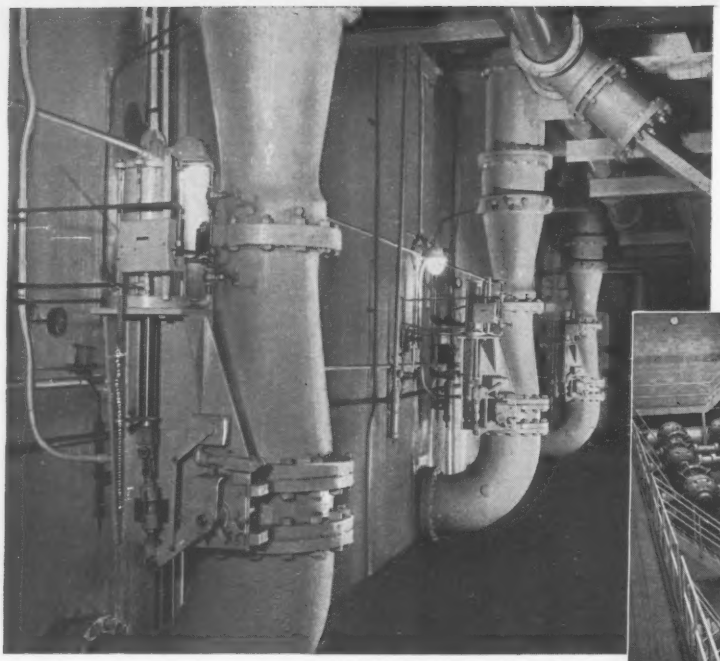
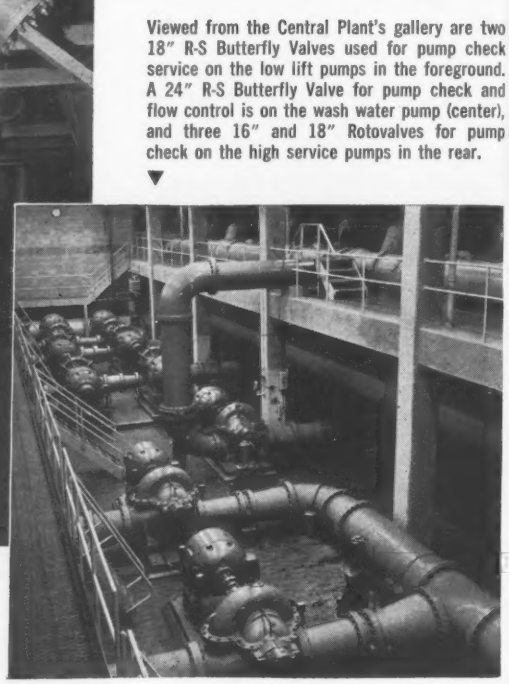
Dodge Reports

For Timed Selling to the Construction Industry



Viewed from the Central Plant's gallery are two 18″ R-S Butterfly Valves used for pump check service on the low lift pumps in the foreground. A 24″ R-S Butterfly Valve for pump check and flow control is on the wash water pump (center), and three 16″ and 18″ Rotovalves for pump check on the high service pumps in the rear. ▼



▲ These 18″ R-S Butterfly Valves serve as both rate of flow controllers and shut-off on effluent to the filter. Automatic (pneumatic) positioners hold rate of flow set from filter floor. Compact R-S Butterfly Valves not only save space, but here **entirely eliminate conventional gate valves which would ordinarily be used for shut-off.**

ST. LOUIS COUNTY WATER CO. CHOOSES R-S BUTTERFLY VALVES

At St. Louis County Water Company's Central Plant, 29 R-S Rubber-Seated Butterfly Valves, in sizes from 18″ to 36″, were installed for filter service in 1952. Chosen for their compactness and ease of operation, these valves have performed to complete satisfaction with only minimum maintenance to date. Tough rubber through the body and angular-seating vanes give positive closure, assure long service life.

Other R-S Rubber-Seated Butterfly Valves are also installed at the North and South County Filtration Plants. In addition, 24 Rotovalves are used in transmission mains and for pump check service, as well as 9 Angle Needle Relief Valves and 5 SMS-Ball Valves, which replace conventional gate valves in transmission mains.

These St. Louis installations are typical, for in the SMS line of Rotovalves, Butterfly and Ball Valves, you will find valves that meet your needs. For complete information, contact our local representative, or write S. Morgan Smith Company, York, Pennsylvania.

S. MORGAN SMITH HYDRODYNAMICS

AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED, TORONTO

4

Rotovalves • Ball Valves • R-S Butterfly Valves • Free-Discharge Valves • Liquid Heaters • Pumps • Hydraulic Turbines & Accessories

Moving Ahead in Prestressing

Engineers attending the World Conference on Prestressed Concrete in San Francisco (ENR Aug. 8, p. 23) had an opportunity to visit the casting yards and plant of Ben C. Gerwick, Inc., at Petaluma, Calif. There they saw the latest stage of development of a company construction firm that has broadened its activities to include manufacturing precast units and prestressed concrete.

The firm's recent expansion into prestressed concrete fabrication can be attributed to Ben C. Gerwick, Jr., who is also the new head president of the Prestressed Concrete Institute. He took over the reins of the company four years ago when his father and founder of the reins of the company four years ago when his father and founder of the company, Ben C. Gerwick, Sr., moved up to chairman of the board. Ben, Jr., combining the long experience of the company in precasting with the newer technique of prestressing, has made the company one of the largest firms in the burgeoning prestressing field.

When Ben, Sr., founded the firm in 1925, it specialized at first in marine and heavy foundation construction. In the years before World War II, the company began to place an increasing reliance on precast concrete. Its big jump into precasting came in World War II when it produced concrete units for submarine dry docks at the San Francisco Naval Shipyard.

Since the war, the company conceived the idea of precasting units for the Standard Oil Co. wharf at Richmond, Calif. (ENR Nov. 13, 1947, p. 112).

This was followed by the use of similar units for the Union Oil Co. wharf at Oleum, Calif. (ENR Oct. 21, 1954, p. 34).

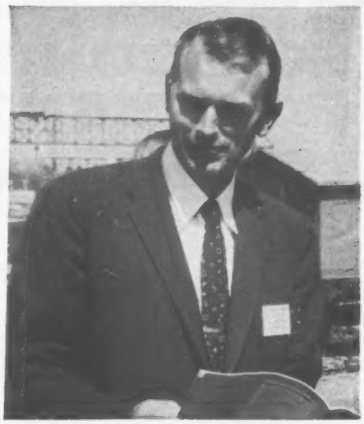
The largest and most challenging project undertaken by the company in the precast field was the Richmond-San Rafael Bridge substructure (ENR March 4, 1954, p 30). On this job, the entire foundations were constructed of precast units.

When Ben, Jr., a 1940 engineering graduate of the University of California, became president of the firm in 1953 he instituted its move into prestressing. Since 1955, when the company completed its first precast, prestressed job, most of its production has been precast, prestressed products, such as piles, bridge girders and various building members.

The firm sells precast and prestressed units to other contractors, as well as using them on its own projects.

At present, the extensive pretensioning plant at Petaluma consists of a variety of casting beds. In four 100 ft long beds, up to six heavy bridge girders can be cast each week. A 3 line 340 ft long bed is used for pretensioning large piles or heavy girders. Other facilities include a 4 line 500 ft bed, a similar 400 ft bed and an additional 100 ft bed. Another company plant is in operation in Long Beach, Calif., and there are plans for a plant in Peru and one in the Middle East.

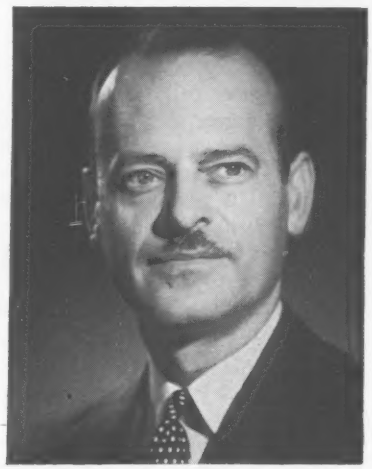
"Now that it is possible to combine the advantages of precast concrete with those inherent in prestressed concrete, many new fields and applications are opened up," Ben Jr., said. "Today our construction work is still the major part of our business. However, it is quite probable that our precast prestressed concrete business will become the major part in the near future."



Ben C. Gerwick, Jr.

To that end, Gerwick, Inc., has plans for a plant in Peru and in the Middle East for a large port project. Several other plants in foreign countries are also under consideration.

Louis O'Sullivan



Leo Roy

Moved to New Positions in Quebec Hydro

Louis O'Sullivan, assistant general manager of Quebec Hydro-Electric Commission, has been named a commissioner, and Leo Roy, chief of the auxiliary services since 1952, has been named as the commission's general manager.

Mr. O'Sullivan is a civil engineering graduate of McGill University who joined Montreal Light, Heat and Power in 1923 and in 1942 was appointed to the office of general executive assistant of that company (predecessor of Hydro-Quebec).

He is a former president of the Corporation of Professional Engineers of Quebec and a past counsellor of the Engineering Institute of Canada.

Mr. Roy graduated from the Montreal Polytechnical School as a civil engineer in 1930 and from McGill as a bachelor of electrical engineering in 1932.

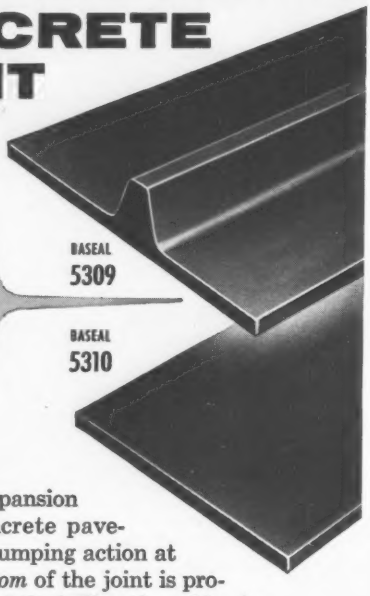
His electrical career began with the Shawinigan Water & Power Company. In 1938, he joined the Quebec Power Company and became assistant superintendent of its electricity division

SERVICISED

"BASEAL" rubber base plate

FOR CONCRETE PAVEMENT

Keeps Water And Foreign Materials From Entering Joint At Bottom...

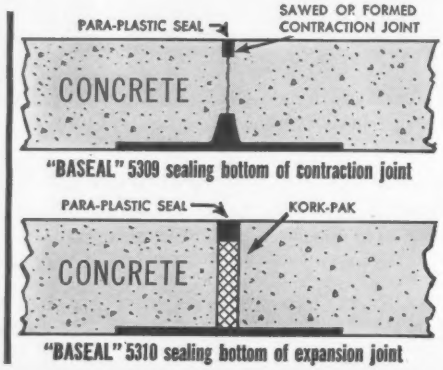


For maximum protection of expansion and contraction joints in concrete pavement, and the elimination of pumping action at joint intervals, be sure the *bottom* of the joint is protected against water seepage and the infiltration of foreign materials. Specify Servicised "BASEAL"—a resilient rubber base plate for expansion and contraction joints—made in two types, specifically designed for optimum performance and joint protection. "BASEAL" provides long-time protection because it is an extremely stable rubber compound, resistant to deterioration caused by fungus growth, etc.

Installation is simple. "BASEAL" is merely placed over the compacted pavement base prior to paving. Due to its resilient characteristics, the material will conform to the terrain after concrete is poured.

"BASEAL" is available in continuous lengths of 26 feet. Standard width is 6 inches.

Drawings at right show Servicised "BASEAL" in place in expansion and contraction joints.



Write for the SERVICISED Catalog which illustrates and details Servicised products for highway and heavy construction work.

SERVICISED PRODUCTS CORPORATION
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in 1941. He joined Hydro-Quebec in 1946.

President of the Montreal section of the Engineering Institute of Canada, Mr. Roy is immediate past president of the Corporation of Professional Engineers of Quebec and a former president of the Montreal section of the American Institute of Electrical Engineers.

Careers

Business

Charles S. Daniels, Edward S. Hoffman, Weymouth W. Kirby and **James H. Stiggleman** have been appointed associates in the firm of Childs & Smith, Chicago, Ill., architects and engineers.

Fred Jacobs has been named chief engineer of the I. W. Air Conditioning Corp., a division of I. Wenig & Sons, Inc., in New York, N. Y.

James F. Calvin has been named district manager in the O.E.M. Division, Acme Industries, Inc., Jackson, Mich.

Bernard Perlin has been promoted to general manager of the Steel Building Division, Calcor Corp., Los Angeles, Calif.

Thein Wah has assumed new duties as senior research engineer, structures section of the Dept. of Engineering Mechanics, Southwest Research Institute, San Antonio, Texas.

S. M. Spears, former dean of engineering at Fenn College, Cleveland, Ohio, has been named professor of civil engineering in the college of engineering, University of Arkansas.

Four new names have been added to the list of partners in the New York consulting engineering firm of Tippetts-Abbett-McCarthy-Stratton. Admitted to the firm as general partners are **Walther Prokosch** and **Barnett Silverstob.** Admitted as associate partners are **Eugene E. Halmos, Sr.** and **Wilson V. Binger.**

Education

Henry M. Morris, former head of the civil engineering department at Southwestern Louisiana Institute, has been appointed head of civil engineering at Virginia Tech in Blacksburg, Va.

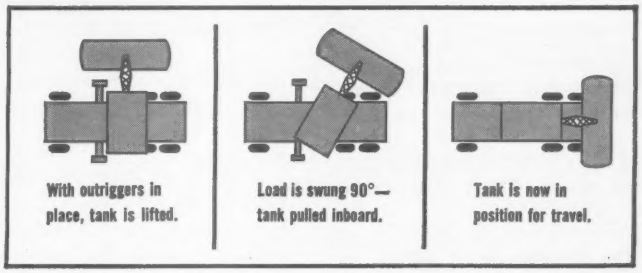
Retirements

Donald H. McCoskey, chief of the engineering division of the Southwestern Division, Corps of Engineers, retired after 28 years of service. He joined the New York engineering firm of Tippetts-Abbett-McCarthy-Stratton and will be stationed in Baghdad, Iraq, as their chief engineer in that country.

(*M&J continued on page 82*)

HOW 17 TON TANKS ARE LIFTED AND TRANSPORTED WITH A BAY CITY CRANEMOBILE

Because a BAY CITY CraneMobile can be used to transport as well as lift, it's a doubly-handy machine to have working for you. The photo and accompanying sketches show this husky performer, owned by Leach Steel Corp. of Rochester, N. Y., moving one of 60 bulky 17-ton steel tanks. The CraneMobile's extreme stability, power, and balance fit it for dozens of job applications . . . it is a busy contractor's most versatile, most profitable piece of equipment. Available in four sizes with a choice of seven mountings . . . crane capacities from 15 tons up. Call your dealer or write direct for illustrated catalog.



268

BAY CITY SHOVELS, INC. • BAY CITY, MICHIGAN

BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

"As trouble-free a

Montana contractor de

"Tournapulls are about as trouble-free a machine as you can find," says Charles V. Sullivan, partner in the contracting firm of Schye & Sullivan, White Sulphur Springs, Montana. As proof, he cites the record of his 3 D Tournapulls during the past 3 work seasons.

Working on canal construction for the State Water Board, and on street work in cities and towns, the 3 D 'Pulls have often been loaded ½ yd. beyond their rated capacity of 7½ yds., by means of extra-high sideboards, installed by S&S.

Little trouble in 3 years

In 3 years of work — much of it under extra-capacity loads — the "D's" have required little maintenance. Schye & Sullivan had no trouble at all with the weatherproof electric motors which control steer and scraper operations.

Original tires lasted for 2 work seasons. In the rocky ground typical of the White Sulphur Springs area, Mr. Sullivan explained, abrasion is a serious problem. Here rock usually cuts the side-walls out of tires before the treads wear out.

In city street work, "D's" maneuverability proved a cost-saving factor. This same ability to get around easily in tight quarters enables this contractor to use the narrow-width "D's" for precision cut and fill work.

New "D" — 9-yd. capacity

New D Tournapulls have increased capacities over those described here — to 9 yards. Narrower width (8 ft.) and weight within 9-ton axle load limit means machine can be *roaded anywhere without permit.*

New Fullpak for S&S

Schye & Sullivan recently added a new 18-yd. C Fullpak to their scraper fleet — on the basis of previous Tournapull performance. They put the C Fullpak to work with their D 'Pull fleet on a 4-month roadbuilding job — Project S201 of the Montana State Highway Dept. The road, 20 mi. long, connects Fallon, Mont., with new oil fields. Schye & Sullivan contracted for all earthmoving on 6.1 mi. of the job.

The Fullpak and a "D" teamed up on one part of the job requiring cut and fill at locations 1300' apart. Materials were sand, gravel, and silt. Fullpak averaged 14 pay yds. per trip, "D" picked up 7. Cycle times were close — 5 min. 30 sec. for the larger rig, 5 min. 37 sec. for the smaller. 'Pulls lowered their blades to grade road on return trip.

For high-production work on big jobs, the new C Fullpak — with faster-loading, easier-boiling scraper bowl — offers 18-yd. capacity, high speeds, more net profit per yard.

Easy-loading 18-yd. C Fullpak picks up big yardage fast on S&S job. New bowl design makes it easy to load and fill all corners. Positive ejection spreads load clean and fast, at any speed.

"You can roll more dirt with an Adams"

An Adams heavy-duty grader, owned by Schye & Sullivan of White Sulphur Springs, Mont., does a variety of jobs efficiently. Working on State Project S201 preparing a new road near Fallon, the Adams did all ditch and backslope work, spread fill, finished grades, and did all haul-road maintenance.

as you can find"

describes 'Pulls

One of the 3 D Tournapulls owned by Schye & Sullivan spreads a 7-yd. load to fill in a low spot on a new Montana road. Note 24"-high sideboards installed by owner for extra-capacity loads. New Model "D's" have 9-yd. capacity, more maneuverability.

Charles V. Sullivan, partner in the firm of Schye & Sullivan.

Tournapull—Trademark Reg. U.S. Pat. Off. Fullpak, Adams—Trademark PDPAG-1239-H

Schye & Sullivan used an Adams heavy-duty motor grader for all ditch and backslope work, fill spreading, job finishing, and haul-road maintenance on the Montana State road job.

"You can roll more dirt with this Adams than you can with other graders in its work range," Mr. Sullivan said. "For street work, it's a good rig, too. On one job, we pulled 5 rippers (scarifier teeth) in 3rd gear with this machine. Lots of power."

Two 660 Models

The big Adams 660 grader is available in 2 models, differing only in engine hp and transmission. The standard Model 660 (30,050 lbs.) has a 150 hp engine driving wheels through a constant-mesh transmission.

The 190 hp POWER-*Flow* model (30,200 lbs.) feeds power smoothly through a torque converter drive. Tailshaft governor on this model adjusts engine speed automatically to preselected grader speeds. This reduces stress on engine.

Ask your distributor for full details on this cost-cutting, heavy-duty grader . . . or write for owner-verified reports on performance. Choice of GM or Cummins engines.

Other sizes available

Model 550 —
123 hp diesel engine.....26,730* lbs.

Model 440 —
115 hp diesel engine.....24,080* lbs.

Model 330 —
80 hp diesel engine.....23,020* lbs.

Model 220 —
60 hp diesel engine.....15,500* lbs.

*(Weights shown are usual working weights)

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

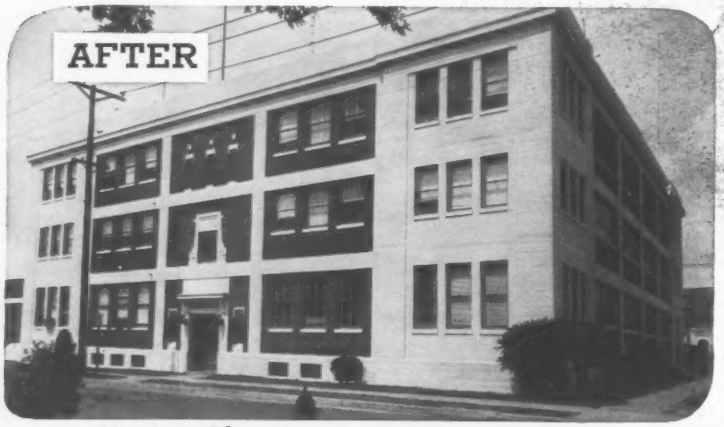
THORITE and THOROSEAL furnish office building with *That New Look* plus all-weather protection.

BEFORE

Severe weathering had deteriorated sections of cornices, sills, lintels and ledges. Cracks permitted water penetration, causing damage to interior of building.

All cracks were opened with hammer and chisel, spalled areas cut and cleaned, then patched with THORITE, followed by two brush coat applications of Pearl Gray THOROSEAL.

Brick was left uncoated to develop pleasing contrast. See Circulars No. 16 and 20.



Virginia Electric & Power Company
Richmond, Virginia

THORITE *NONSHRINK PATCH* 20 minute set patching mortar

THOROSEAL *MASONRY SEALER* seals masonry walls against water and beautifies surface

"How to do it" GET OUR 16 PAGE BROCHURE

STANDARD DRY WALL PRODUCTS, INC.
NEW EAGLE, PENNA. CENTERVILLE, IND.

. . . Men and Jobs

Government

Col. Desloge Brown has become St. Paul District Engineer, Corps of Engineers, succeeding **Col. Otto J. Rohde,** who has been transferred to the office of Chief of Engineers for duty in the military construction division.

Col. Elmer E. Kirkpatrick, Jr., will be District Engineer of the newly activated Southern District, Mediterranean Division, Corps of Engineers, at Leghorn, Italy. **Col. John C. Potter, Jr.,** has been named District Engineer for the Morocco District, another new district in the Mediterranean division, located at Nouasseur Air Base.

Obituaries

Albert T. Bleck, 62, assistant state highway engineer since 1934 in Wisconsin, died Aug. 6 in Milwaukee. During the preceding 19 years he was engineer in charge of construction for the State Highway Commission.

Manton E. Hibbs, former chief engineer of the Old Bureau of Building Inspection of the City of Philadelphia, died Aug. 8. He was 90 years old. Mr. Hibbs was an 1889 civil engineering graduate of the University of Pennsylvania. After a number of years with the Pennsylvania Railroad, he went to work for the city of Philadelphia in 1892. He served as city building inspector, was later appointed an engineer and in 1929, was made chief engineer. He helped prepare the city's building code adopted in 1927. He retired in 1948 after 49 years with the city.

Frank R. Bornhurst, steel erector, died Aug. 9 in Syracuse, N. Y. He was 76. Mr. Bornhurst was owner of the General Erecting Co.; secretary of Bornhurst Inc., structural steel erectors; and past president of General Crane Service Inc. He erected steel framework for many structures in the Central New York State area during 48 years in the construction business.

Oscar L. Owen, 60, Whiteville, N. C., senior resident engineer with the North Carolina Highway Department, died Aug. 2. He had been with the department for 20 years, and formerly served as chairman of the Columbus County Chapter of the State Highway Employes Association.

Wayne J. Deady, 55, a civil engineer for the California Division of Highways for more than 27 years, died July 19 in Sacramento.

Grader speeds from 0.41 to 26.0 mph

cut Indiana contractor's costs

When you figure a grading job, you usually think in terms of grader operation at 2 or 3 — maybe 4 — miles an hour. True, this is the normal work-range. But now consider how added *high-range speeds* cut non-productive time... how wider range of *"just-right"* blading speeds boost grader output... how *extra-slow speeds* can actually hurry completion of jobs.

Here's how a modern 15-speed grader increases productivity:

Spears-Dehner highway job

Indiana Highway Department awarded Spears-Dehner, Inc., Ft. Wayne, Indiana, the contract for roadwork on 6.7 miles of State Route 427, between Hamilton, Ind. and the Ohio state line. This improvement-relocation job involved moving 200,000 cu. yds. of dirt and rock for highway fill.

Heavy equipment used by contractor included a 15-speed Adams* 660 grader, a crawler-scraper and 4 self-propelled scrapers, a push-tractor, dozer, and a flat roller. Photos of "660" were taken when contractor was building-up a 10′ fill with dirt hauled from a 10′ cut, down the road.

High-range speeds save time

The first opportunity for 150 hp Adams 660 to cut costs came as it was moved to the job site. An operator hopped on the Adams in Ft. Wayne ... rolled along streets and highways at 26.0 mph... made 45 miles in 1¾ hours. "660" arrived in plenty of time for a full 8 hours of productive work.

On the job, Adams' higher forward speeds also reduced waste-time, as grader hustled from one assignment to the next... from dirt loading zone to fill, etc. When doing one-way work, grader's *extra-fast reverse* also saved time. The Adams backed-up at 13.7 mph... made 5 blading "passes" in the time most other graders take for 4.

"Just-right" blading speeds

"660" also saved Spears-Dehner money with its 4 speeds in the normal work-range (instead of the customary 3). This permitted operator to work at engine speeds close to full rated rpm ... to push more dirt... to push it faster. Maintaining fill, as pictured below, Adams spread 4000 yards a day. Operator Otis Osborn used 3rd gear... bladed at 4.7 mph. With the same blade-load, other graders would work in 2nd gear... at 3.6 to 4.0 mph.

On heavy dirt work, such as ditching, "660" worked in second gear (3.2 mph), producing 1800′ to 5000′ more blade-work per hour than ordinary graders. And for bank sloping, operator used 1st gear, 2.3 mph.

Low-low creeper speeds

Contractor's "660" has creeper gears for full power, slow motion operation at 36′ to 160′ per minute. With these, the operator worked slowly for accurate cuts — but with tremendous power. He graded safely in rocky soil... around obstructions ... bladed precisely between forms. One hefty Adams cut saved several shallower half-throttle "passes". Creepers also minimize shock... eliminate need for "slipping the clutch"... reduce maintenance and downtime.

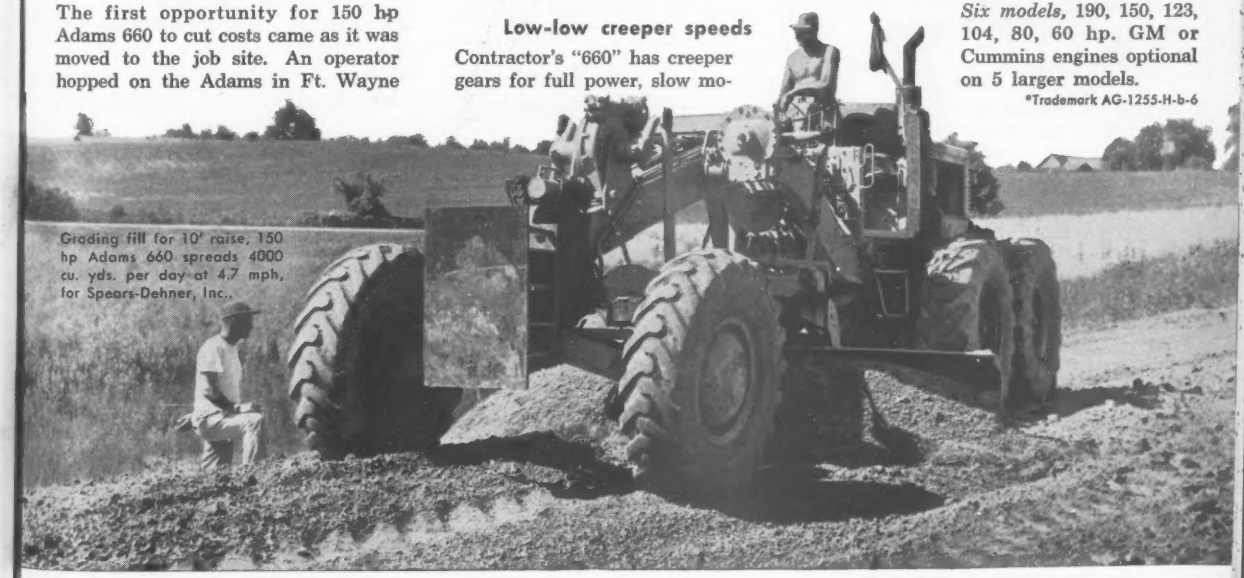
Spears-Dehner's "660" slopes banks at 2.3 mph. Where rock was encountered, creeper speeds slow as 36′ per minute gave controlled power, without reducing depth of cut.

Help yourself to better profits

Ask for a demonstration. See how the multiple speed-power combinations, standard on all Adams graders, help you do more work at lower cost. Call or write for complete, free information.

Six models, 190, 150, 123, 104, 80, 60 hp. GM or Cummins engines optional on 5 larger models.

*Trademark AG-1255-H-b-6



Grading fill for 10′ raise, 150 hp Adams 660 spreads 4000 cu. yds. per day at 4.7 mph, for Spears-Dehner, Inc.,

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

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At Little Cost
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Furnished in any desired length—in multiples of 6 inches. Packed 10 markers to a carton.

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Write for Bulletin 144

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Storage or temporary housing—field offices, tool sheds or workshops—there's an attractive, functional ECONOMY Utility Building available for any requirement in a variety of designs and sizes from 6' x 8' to an extensible 30' x 250' and up. Constructed in sections of kiln-dried, tongued and grooved west-coast lumber. Quick to assemble, dismantle, transport. Can be extended at any time. Delivered complete—exterior painted. Used by many of the nation's most successful construction firms. Readily adaptable to special requirements.

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7½' X 16' Mobile Building

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Legal

Court Makes Contractor Minimize His Damages

When a contract is breached; the offended party is not allowed to aggravate his loss.

Operation of the principle is illustrated by a federal case in North Carolina involving a subcontract for excavation and soil replacement. While the work was in progress, the general contractor decided that the subcontractor lacked the necessary equipment and labor to complete his contract on time. To prevent holding up the rest of the construction work, the general contractor took over part of the sub's work and suggested the sub move his equipment to another location at the project where performance was not so urgent. The sub refused and abandoned the job, and the general contractor completed the work on time.

In a suit against the general contractor for breach of contract, the subcontractor was granted judgment for the work he had performed up to the time the contract was repudiated. The general contractor counterclaimed for overtime paid to complete the work on time, but the court denied this, holding that the evidence was sufficient to justify a finding that the general contractor could have completed the work within the contract time without resorting to overtime.[1]

(1) Calhoun, Jr. v. Midstate Contractors, Inc., 145 F. Supp. 417, U. S. District Court of North Carolina, Nov. 1, 1956.

Payments to General

New Jersey court rejects trust fund theory

There are no civil remedies available to a subcontractor for misappropriation of funds paid a general contractor under a private construction contract in New Jersey.

In a recent case, the Superior Court of New Jersey dismissed an action brought by subcontractors against a bankrupt general contractor's officers and directors for breach of contract. It was claimed that the subcontracts had been completed and that the subcontractors had not been paid even though the general contractor had been paid for the work under the general contract. Theory of the case was that money received by the general contractor was received in trust for the benefit of those who performed the subcontracts.

Despite the existence of two state laws on contractor misappropriations, the court held that the trust fund theory did not apply and that the subcontractors had failed to state a cause of action against the general contractor.

The first of the statutes, applicable to private construction work, declares that sums received by a contractor in payment for work are trust funds to be applied for the benefit of those furnishing labor and materials, and that a diversion of the funds is a misdemeanor. The other law, applicable to public works, also makes such money a trust fund for similar purposes, but it does not make misappropriations a criminal offense.

In dismissing the action,[1] the court said: "I find that the failure of the Legislature to specifically create the civil remedy in the case of private contracts as it did where public contracts are involved (N.J.S. 2A:44-148, N.J.S.A.) cannot be cured by judicial interpretation of the term "trust funds" as found in the statute defining the criminal act. Since criminal statutes must be strictly construed, and further, since it is a long standing precept that civil remedies are not created in criminal laws, I find that plaintiff has not established that the moneys held by the defendant here were trust funds held for the benefit of the plaintiff and others in this case. I, therefore, deny plaintiff's motion for summary judgment and grant defendants' cross motion for dismissal of the complaint for failure to state a cause of action."

(1) Plevy v. Schaedel, 130 A. 2d 910, Superior Court of New Jersey, April 4, 1957.

Vagueness Did Not Defeat An Employment Contract

The fact that a contract to supervise construction of a building contains alternative amounts for compensation does not make the agreement too vague to permit recovery for services rendered.

A state court in Maryland recently had before it an agreement under which an owner had agreed to employ the plaintiff at $550 to $600 a month to supervise construction of a home. The court allowed recovery at the rate of $550 a month on the theory there was, in any event, an agreement to pay the lesser amount.[1] "We construe the offer to pay for the supervision", the court said, "in certain, or alternative, amounts per month. It is true that there was evidence that the building operations

At U.S. Air Force Academy:

fast L-W earthmoving team speeds lagging job

On new Air Force Academy job, each C Fullpak, working a 2800′ cycle over steep grades, moved ten 12-yd. payloads per hour.

To speed up lagging earthmoving operation at new U.S. Air Force Academy, Colorado Springs, Stephenson Logging and Construction Co., of Denver, subcontracted to move 250,000 yds. of rocky earth.

4 C Tournapulls cut 3936 yds. off granite hill in a day

The project involved cutting down a rocky granite hill and using material to bring Academy site areas up to grade. It meant working in boulders, partially decomposed granite, sand and clay. To handle this rugged material, Stephenson Logging and Construction Co. assigned two 18-yd. C Tournapulls with Fullpak scrapers and two older model C Tournapulls — to do the dirtmoving. Although the material was chunky and hard to load, the four "C's" moved up to 3936 yds. in a single 9½-hour work shift.

10 loads per hour on 2800′ cycle

Push-loaded in 60′ on hillside borrow, fast, easy-loading Fullpaks picked up better than 12 yds. of high-void rocky material per trip. "Pulls" hauled 1300′ down steep grade to fill, spread load over 75′ to 100′ on the run, and returned 1300′ to borrow . . . completing 2800′ round trip in 5 min. 40 sec. This gave Stephenson a total of 10 loads per hour for each "C".

"We have less downtime with Fullpaks"

Ruggedly built Tournapulls lost very little production due to downtime. Foreman A. J. "Bert" Stanton says: "We have less downtime with Fullpaks on this rock work than any outfit here. I think for all-around earthmoving, our four C Tournapulls are better than any similar machine on this huge project."

Get all the facts on the new, profit-making C Fullpak — the easiest-loading scraper on the market. Ask about this new, wide-bowl unit, with 18-yd. heaped capacity. You'll find it will speed your loading . . . give you faster working cycles and more pay yards per hour.

Fullpak—Trademark, Tournapull—Trademark Reg. U.S. Pat. Off. CP-1294-DC-1

New, low, wide-bowl Fullpak heaps payload of high-void material fast . . . loads over 12 yds. within 60′ in less than 44 seconds.

To build cadet drill field at Colorado Springs Air Force Academy, four C Tournapulls moved 250,000 yds. of decomposed granite, clay, sand, and boulders.

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BELMONT ST. Built in 1921. Photos taken in 1922 and in 1956.

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RAILROAD SQ. Built 1920. Photos were taken in 1922, 1956.

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A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

CHESTNUT ST. Built in 1928. Photos: 1928 and 1956.

did not proceed at a uniform rate, but was slowed down at one time because of bad weather and because of a fire.... But the agreement was to pay a fixed rate per month, and not on the basis of the time spent on the job".

As part of his defense, the owner contended that the employment contract was illegal because a building permit had not been obtained before construction started. But the court dismissed the argument because the building plans were approved before any of the interior work on the building was begun.

(1) Schloss v. Davis, 131 A. 2d 287, Court of Appeals of Maryland, April 15, 1957.

Meaning of Contract

Not a question for jury if contract, taken as a whole, is not ambiguous

Interpretation of a price adjustment clause in a building contract is a question of law for a court to decide and not a question of fact to be tried by a jury if the meaning of the clause can be determined from the language of the contract.

The question came before the New York Court of Appeals this year in litigation between Bethlehem Steel Co., on the one hand, and Turner Construction Co. and Mutual Life Insurance Co., on the other. Turner, which was erecting an office building for Mutual, had a subcontract with Bethlehem, which was to furnish, deliver and erect the structural steel. Dispute was over an escalator clause in the subcontract providing for increases or decreases in the amount to be charged by Bethlehem depending on changes in the "prices for component materials".

Bethlehem contended the contract price would vary in accordance with changes in its regular prices to customers, the component materials being the pipes, plates, bars, rivets and bolts used on the job. Turner and Mutual argued that the price changes were related to fluctuations in the cost of materials used by Bethlehem in fabricating the structural items to be used on the job.

The court ruled that there was no question of fact involved and agreed with Bethlehem that the clear intent of the escalator clause was to tie construction costs to changes in the prices of the materials used by Bethlehem on the job.[1]

"It has long been the rule that when

ELECTRIC PLANT NEWS

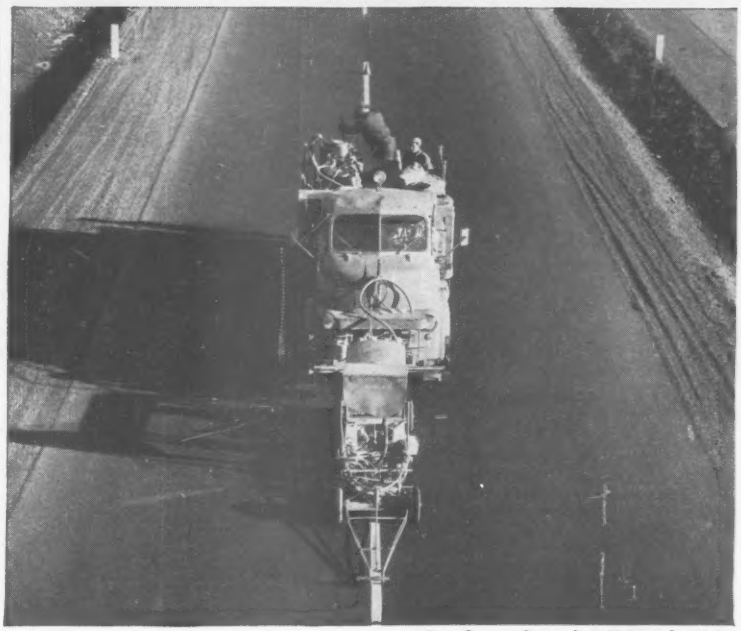


Photo Courtesy Oregon State Highway Commission

New striping machine "welds" hot paint to highway

Onan Electric Plant, mounted on vehicle, supplies current for 6,000-watt electric heater

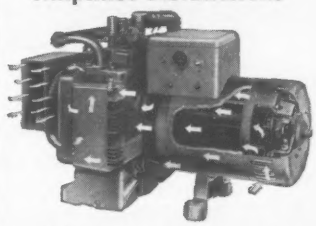
Highway striping has always been a headache for maintenance departments. The paint dries slowly, wears off too quickly, and it's expensive.

The vehicle shown above helps with all three of these problems by heating the paint to 160° before application. Hot paint dries within five minutes, it wears longer because it penetrates and bonds to the surface . . . and 30% less paint is required.

Current for the two 3,000-watt heating elements is supplied by an Onan 7,500-watt electric plant, powered by a smooth-running, two-cylinder, air-cooled Onan gasoline engine.

Wherever you need electric power . . . for lighting, motor-driven equipment, or heating . . . and highline power is not available . . . an Onan Electric Plant will do the job.

Onan Vacu-Flo cooling simplifies installations



With Onan's Vacu-Flo system, air is drawn, (rather than blown) through generator and engine, and discharged through a duct to the outside. An Onan air-cooled plant with Vacu-Flo can be installed in a small compartment within a truck or trailer.

A. C. Models: 500 to 75,000 watts. Also D. C. and Battery Charging units

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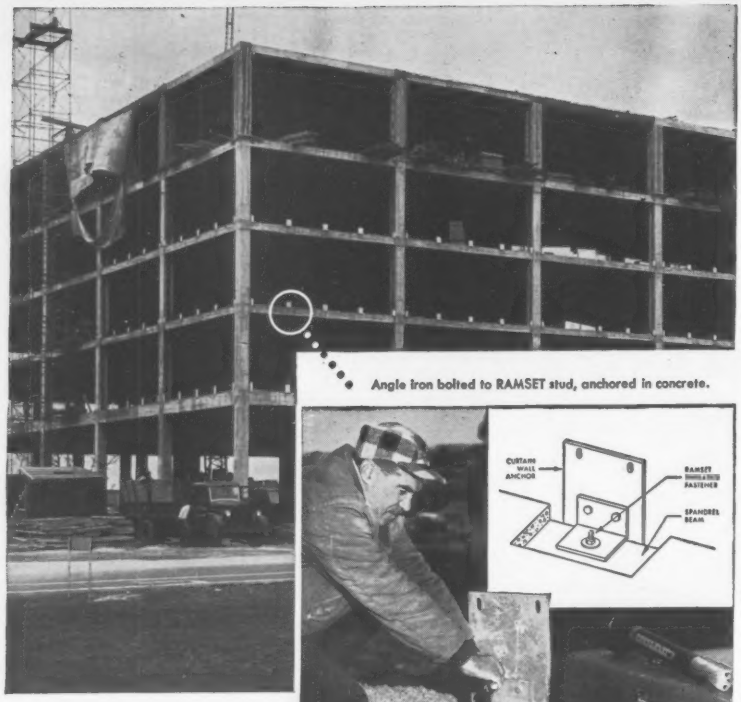

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General Contractor: George A. Fuller
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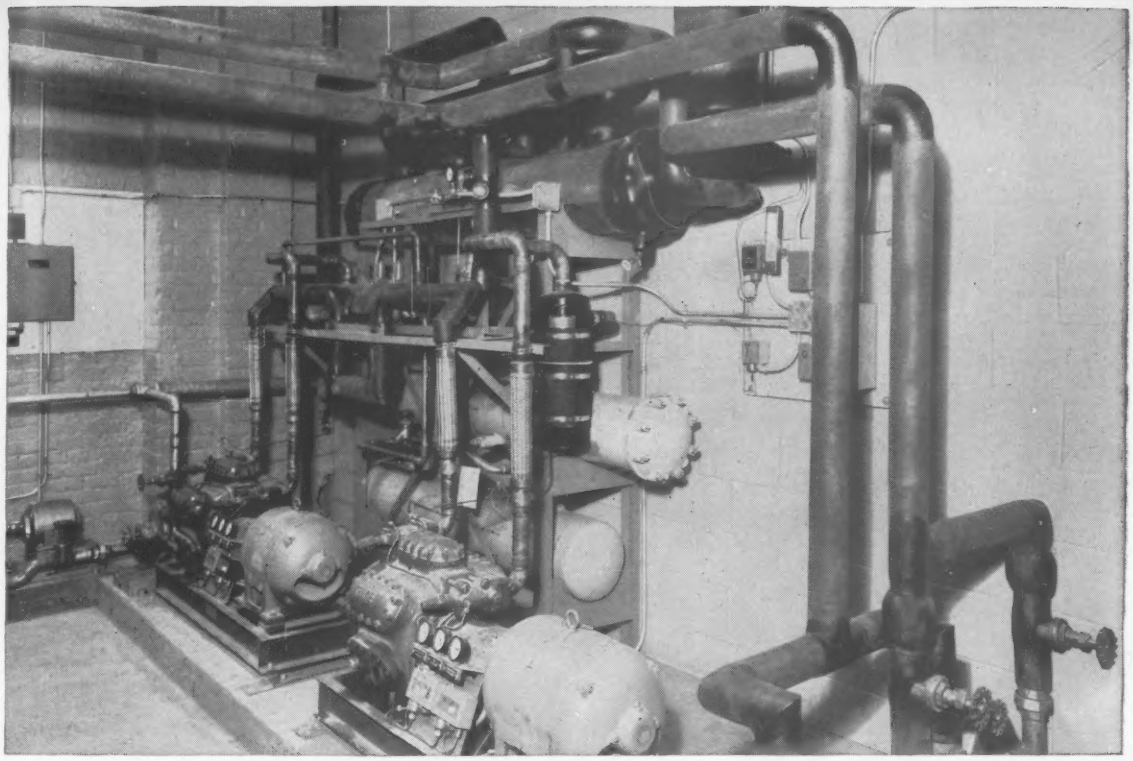
a contract is clear in and of itself', the court said, "circumstances extrinsic to the document may not be considered. General Phoenix Corp. v. Cabot, 300 N.Y. 87, 89, 89 N.E. 2d 238, and that where the attention of the parties may be gathered from the four corners of the instrument, interpretation of the contract is a question of law and no trial is necessary to determine the legal effect of the contract, Brainard v. New York Central R. Co., 242 N.Y. 125, 151 N.E. 152, 45 A.L.R. 751; Matter of Western Union Telegraph Co. (American Communications Ass'n), 299 N.Y. 177, 86 N.E. 2d 162.

"Appellants (Turner and Mutual) argue that unless the escalation clause has the meaning attributed to it by them, Bethlehem has an arbitrary unilateral power to change the price terms of the Bethlehem-Turner contract. In other words, appellants are saying that the contract lacks mutuality and that an escalation clause, in order to be valid, must be based on some extrinsic standard by which escalation can be determined. However, this escalation clause provided for increases or decreases in accordance with changes in Bethlehem's regular prices to all purchasers of plain steel products and such a provision does not give Bethlehem undue power of determination of the contract price, Buggs v. Ford Motor Co., 7 Cir., 113 F. 2d 618; Ken-Rad Corp. v. R. C. Bohannan, Inc., 6 Cir., 80 F. 2d 251. The Referee found that Bethlehem in fact charged uniform and regular prices to all purchasers of its plain steel products including its own fabrication and erection division and such a finding is supported by substantial evidence. This finding was unanimously affirmed by the Appellate Division and may not be disturbed by us. Civil Practice Act. Section 605.

"Finally, as a second main point, appellants argue that Bethlehem is not entitled to the claimed price escalation, even under Bethlehem's interpretation of the contract, because it failed to establish that uniform prices were charged by it for structural steel products. The appellants' position on this point is based upon evidence from Bethlehem's records relating to contracts between Bethlehem and others for a variety of jobs involving fabrication and erection. But reliance on this evidence confuses the 'contract price' for the job with the 'prices for component materials'. Certainly the distinction is obvious between a contract price which is a competitively bargained price for a job and includes fabrication as well as the furnishing of plain steel products and, on the other hand, the



Armaflex Pipe Covering and Sheets cut costs of insulating this refrigeration system.

Flexible insulation goes on fast, stops condensation on cold lines

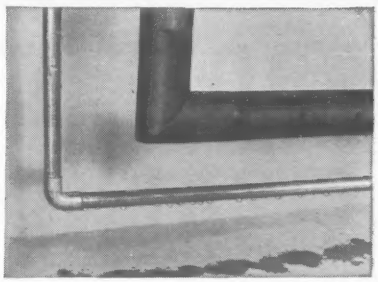
The great flexibility of Armaflex® helps speed the job, often cuts installation time substantially. Armaflex Pipe Covering is slipped over lines or tubing as it is installed, follows contours without any special cutting or fitting. If lines are already in operation, Armaflex is slit lengthwise, snapped in place, and sealed with Armstrong 520 Adhesive. Armaflex sheets on chillers and large diameter piping are applied with 520 Adhesive.

It's easy to stop harmful condensation on cold water and refrigerant lines and equipment, too, with new Armstrong Armaflex. This foamed plastic insulation completely seals out air and moisture, has a remarkably low k-factor of 0.28 at 75° F. mean temperature.

Armaflex is clean to work with. It will not chip, crumble, or rub off, and waste is negligible. It's available in 6′ lengths, ⅜″ and ½″ wall thicknesses, for pipes and tubing up to 3⅛″ o.d., and in 30″ x 36″ sheets, ½″ and ⅜″ thick. **Send for free booklet** giving complete details on this new insulation. Address Armstrong Cork Company, 2209 Wallace Street, Lancaster, Pennsylvania.

Armstrong INSULATIONS

for temperatures from −300° F. to +2800° F.



Armaflex stops condensation when used within recommended temperatures and humidities. Its cellular composition seals out air and moisture, eliminates need for costly application of a separate vapor barrier.

Rapid insulation of fittings is accomplished by miter-cutting pieces of Armaflex, snapping them into place, and sealing with Armstrong 520 Adhesive. No other sundry is required.

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prices of component materials which are the prices for the structural steel products such as pipes, plates, bars, rivets, nuts and bolts."

(1) Bethlehem Steel Company v. Turner Construction Company et al., 2 N. Y. 2d 456, 141 N. E. 2d 590, Court of Appeals of New York, March 8, 1957.

Changes in Contract

Contractor is allowed to recover fair value of work

Where radical changes are made in the plans and specifications under which a contractor is working, the contractor, in seeking payment for the work he does, may disregard the contract and recover on the basis of the fair and reasonable value of the work performed.

A federal court recently allowed recovery on this basis for lathing and plastering work done under subcontract on a Veterans Administration hospital in Salt Lake City, Utah. The court's theory was that the structure built was not the one originally proposed and on which the sub had bid, because of more than 6,000 changes made in the plans during construction.

Prime contractor for the $7.89 million project was Wunderlich, Curlett & Tompkins, a joint venture. Sub for the plastering was Cottrell-Martin Bros., also a joint venture.

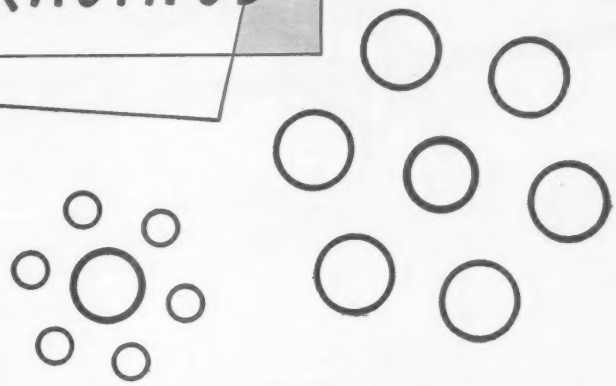
In a suit to recover the difference between the contract price and the fair and reasonable value of the work performed, the sub contended it was not bound by the contract price because the work it was required to do was materially different from that called for by the contract. The court agreed, and said the work was done in consideration of an implied promise from the general contractor to pay for it. Interest on the amount in excess of the contract price was allowed from the date of completion.[1]

As one defense, the general contractor contended that the sub was bound by the contract because it continued working under a contract it could have rescinded because of the variations. It relied on a line of decisions which hold that even though there are grounds for rescission of a contract, a party electing to proceed without rescission is bound by the terms of the contract. Typical of these decisions are Lichter V. William R. Goss Co., 7th Cir., 232 F 2d 715 and Frailey v. McGarry, 116 Utah 504, 211 P. 2d 840.

"In view of the court's finding, which is supported by substantial evidence,

TRICKY TRACINGS

Question: Without measuring first, which of the two center circles is larger? See answer below.



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Unmatched even texture! Arkwright's flawless surface is completely free of pinholes, coarse threads, or other imperfections which cause blobbing and feathering. Its durable finish resists fraying, tearing and curling . . . its greater transparency and durable finish prevent opacity and brittleness.

A joy to use! Even after repeated erasures, Arkwright's superior working surface produces sharp, clean drawings . . . brings out the best in you whatever the project, whatever the problem. In the simple problem above, you'll find that the two circles have equal diameters.

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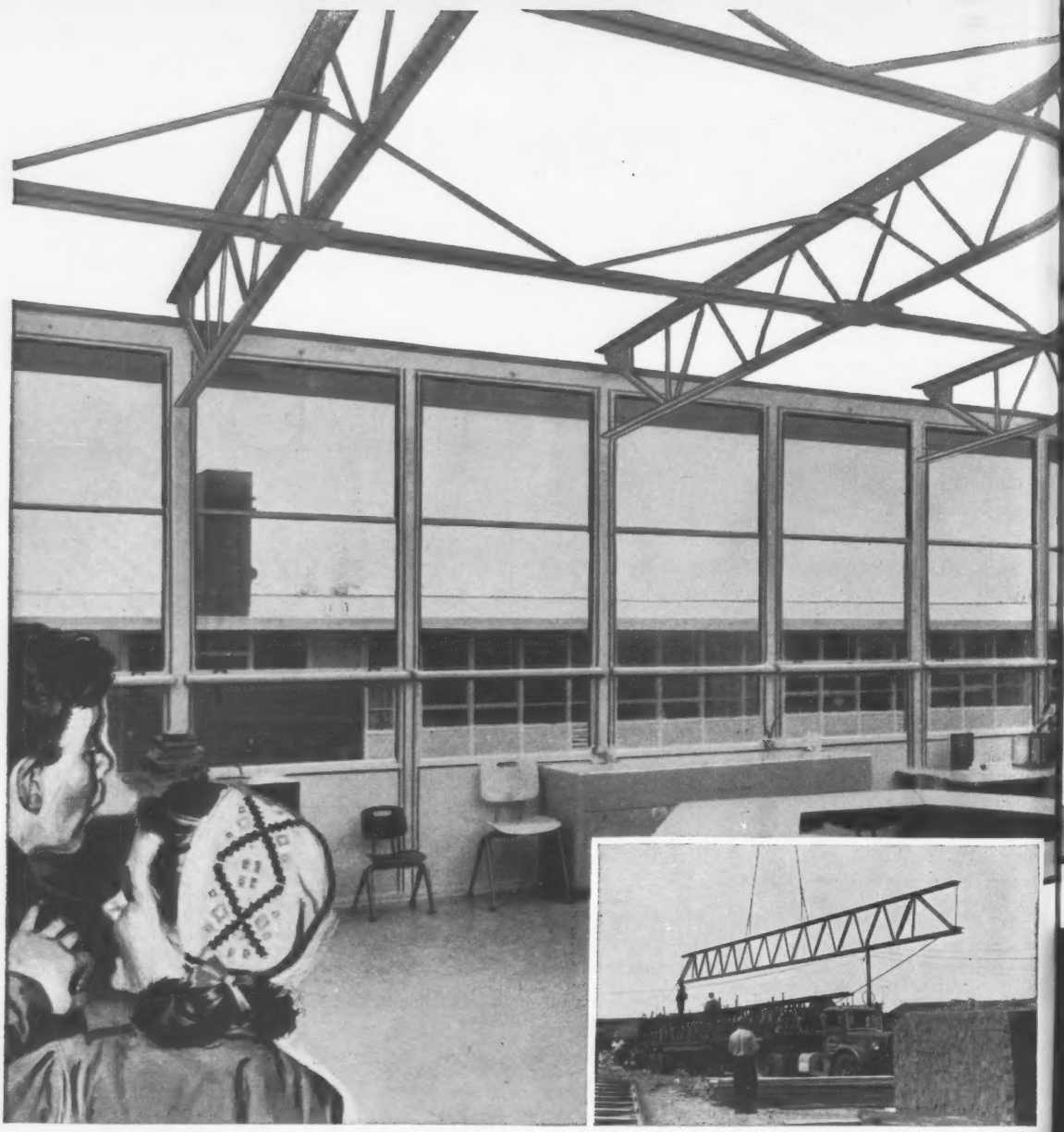

Vision-Vent® Window Walls of the type shown here are the key to Truscon's low-cost school design. Vision-Vent goes up like other curtain-wall systems—fast and easily. And, it offers this important plus—it's a complete wall with window already in place, completely contained within the depth of the window-framing members. Insulated panel can be in color. Choice of double-hung or projected steel windows. The Truscon design system is based upon a 9-foot module consisting of twin Vision-Vent units with mullion.

In the Truscon design concept, roof of the single-story building is supported by Truscon Clerespan® Steel Joists integrated into the 9-foot module. Clerespan steel joists reduce construction time because they are light, long, easy to handle. They are designed to meet all types of loading conditions. Open web allows passage for ducts, pipes, electrical conduit, as needed. Joists can be left exposed and painted, or an acoustical ceiling can be suspended.

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REPUBLIC STEEL

YOUNGSTOWN 1

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Class A, fire-safe construction. Simplified construction methods and modular design provide a permanent, high quality school building that is an asset to any community. This is Class A construction. Materials are fire-safe. And, because all these Truscon products are *steel*, they are strong, long-lasting, safe. Original building dollars go farther, serving the community for many years.

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Truscon Ferrobord® Steeldeck is welded to the top of Cleraspan joists to produce a fire-resistant roof. Ferrobord is light, easy to handle, easy to place. Long lengths span three or more purlins. It roofs large areas quickly. Top surface is ideal for the application of insulation, and built-up waterproofing.

Truscon Steel Doors and Frames are easy to hang, easy to finish. They can't warp or stick, are fire-resistant. They offer low initial cost, low maintenance cost, safety and durability.

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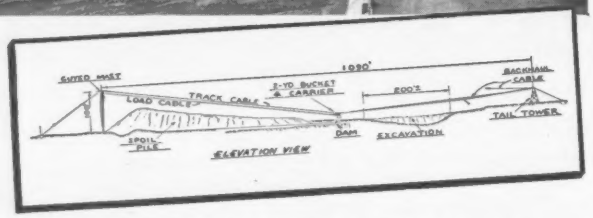
DIGGING and CLEARING



Slackline Cableway—A 2-yd. bucket is used to maintain a clear channel to an irrigation project. The cableway digs the hard packed silt and conveys it to a spoil pile on the downstream side of the dam. Method permits removal of silt without wasting water.—*Sauerman News No. 146.*

STORAGE and RECLAMATION

DragScraper—Coal storage at this large eastern plant is provided by two 7-cu. yd. DragScrapers. New machine (left) parallels one in service for over 25 years. Buckets are shifted by remote control from stations above head-end monorail. Traveling tail towers provide lateral movement of buckets on coal pile.
—*Sauerman News No. 145.*

UNDERWATER TRENCHING

DragScraper and Crane—Here's how a DragScraper used with a carrier and track cable can extend the reach of any crane. This arrangement was highly successful in digging a trench for underwater pipe and backfilling after pipe was laid.
—*Crane-DragScraper information is available in Field Report No. 228.*

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that the work performed by the plaintiffs was not that contemplated by the parties when they entered into the subcontract," the court said, "the rule of the above cases is not applicable."

"Under these findings", the court continued, "we think the rule of Salt Lake City v. Smith, 104 F. 457, controls. That case arose in Utah and grew out of a contract whereby the plaintiffs agreed to furnish labor and materials to construct a covered conduit in connection with the water system of Salt Lake City. As the work progressed, the City Engineer continuously required substantial changes in the plans, and the plaintiffs were required to construct a conduit which was entirely different from that contemplated by the original contract, and plaintiffs sued for the reasonable value of their services, which was substantially more than the amount provided for in the contract. The question was whether the work and materials fell within or without the plaintiffs' contract with the city. It was held that the labor and materials furnished were not contemplated by the parties when they made their agreement, therefore the contract did not control and the plaintiffs could recover the resonable value of their services. It was held that the defendants had the right to require the plaintiffs to perform the subcontract, but they had no right to require them to perform large quantities of work entirely different in character and cost from that originally contemplated by the parties when they made their contract. There was no meeting of the minds of the parties to do work other than that contemplated by the contract, and if such work was required and the defendants received the benefit of it, plaintiffs were entitled to recover the reasonable value. Wilson v. Salt Lake City, 52 Utah 506, 174 P. 847, and Drainage Dist. No. 1 v. Rude, 8 Cir., 21 F. 2d 257, are to the same effect.

"A contractor who bids for work has the right to rely on the plans and specifications submitted to him for bidding purposes. The rights of the parties are to be measured by them. It is only through the plans and specifications that he can make an intelligent bid. Ryan v. Curlew Irr. & Res. Co., 36 Utah 382, 104 P. 218. Burdens other than those contemplated by the contract, may not be placed upon the contractor without additional compensation. Continental Casualty Co. v. Schaefer, 9 Cir., 173 F. 2d 5, certiorari denied 337 U. S. 940, 69 S. Ct. 1517, 93 L. Ed 1745."

(1) Wunderlich Contracting Co. v. United States, 240 F. 2d 201, U. S. Court of Appeals Tenth Circuit, Jan. 2, 1957.

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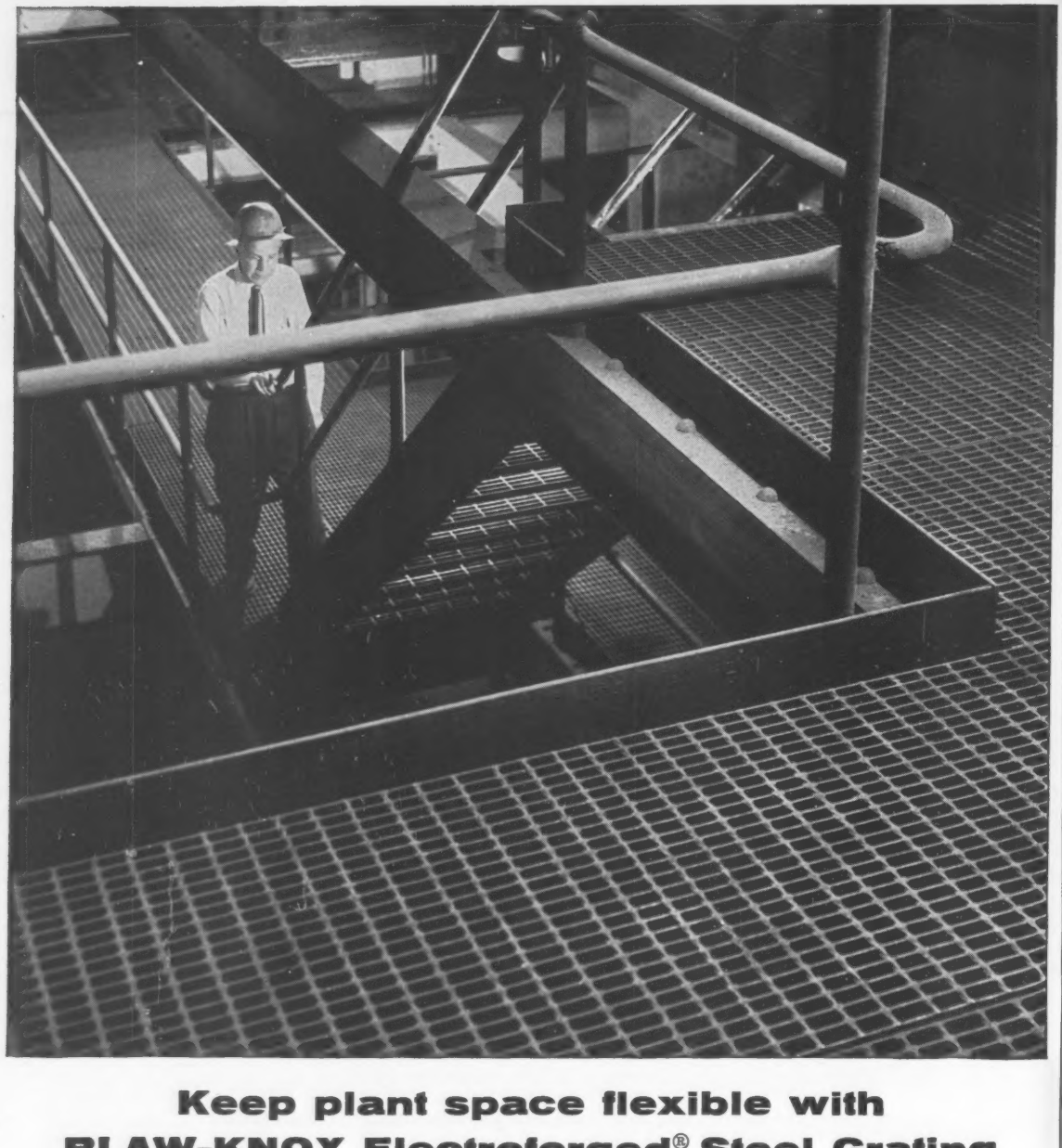

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MIT's New Highway Design Method

A prototype setup of a new method of mechanized highway design is being rushed to completion in the Photogrammetry Laboratory at Massachusetts Institute of Technology, Cambridge.

Integrating aerial photogrammetry and electronic computation, the new method features an entirely different approach from that employed by the Ohio Department of Highways (ENR Mar. 14, p. 37).

Key to the MIT system is point-by-point stereoplotting of an entire band of terrain. This is done with respect to known reference lines rather than to a given horizontal highway alignment and enables any number of trial alignments to be tested without further procurement of x, y and z coordinate data from the aerial photographs. In short, the data procurement phase can be separated completely from the data processing phase of the system (with the engineering phase between the two).

For use in highway location and design, the MIT system is to be utilized as follows:

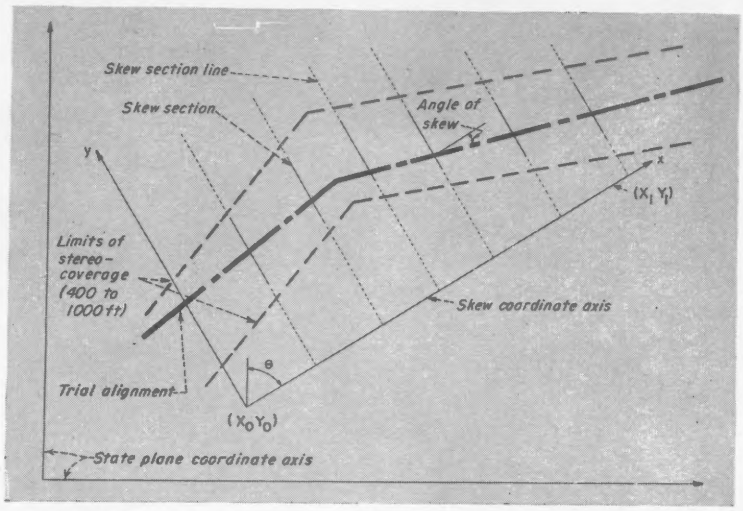
• A band of interest from 400 to 2,000 or more ft in width is selected with the aid of 5 ft, or less precise, contour maps.

• The strip is flown at 1,500 to 3,000 ft altitude, producing a model scale from 1 in. = 50 ft to 1 in. = 100 ft.

• Reference axes, designated as skew coordinate axes in the sketch, are selected for the design band. These axes are related to the state plane coordinate system or other established ground survey system.

• Individual stereomodels are set up in a photogrammetric plotter and the scanning unit is oriented with the skew coordinate system.

• Point-by-point terrain data are obtained along full band width cross sections perpendicular to the axis of the skew coordinate system. x, y and z coordinates of each point are automatically recorded on tape or punch cards suitable for input to an electronic digital computer. Terrain data can also be obtained in the normal manner from a photogrammetric contour map. Spacing between skew sections and between points along sections can be completely flexible or quite rigid.



MIT SYSTEM is based on stereoplotting of an entire band of interest, storing point coordinates in an electronic computer and producing complete data for any number of trial lines and profiles without further reference to aerial photographs.

• The highway engineer selects as many trial lines and profiles as he wishes, providing for each line the PI (point of intersection) coordinates, radii of horizontal curves and vertical curve data.

• Terrain data, alignment data and design templet are processed through an electronic digital computer which computes center line geometrics, design cross sections and earthwork quantities. In location studies, a simplified design templet is employed and certain controls are dispensed with.

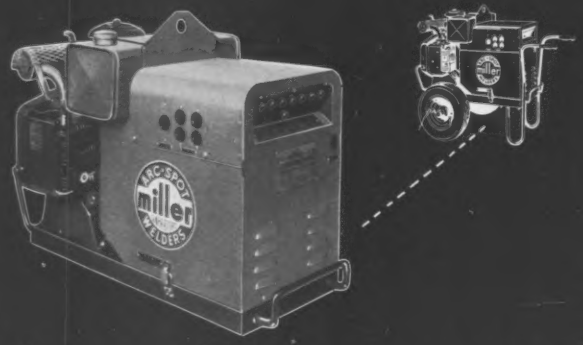
In comparison with this proposed system, the Ohio highway department's mechanized design system takes point terrain data along cross sections perpendicular to the trial line (which is usually the final line and is built right into the stereomodel via ground surveying preliminary to low level aerial surveying). Because in Ohio the plotter operator reads points up to a given distance either side of the centerline, rather than across the entire band, the Ohio method requires less plotter time for one and possibly even two or three trial lines. However, because the MIT system utilizes an entire terrain model expressed in point coordinates, it allows a cleaner break between photogrammetry and computing. To modify a length of line, to say nothing of trying a completely new line, Ohio has to go back to work at the plotting table.

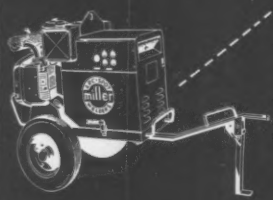
Both systems employ automatic linkages between stereoplotter and electronic computer that are similar in principle, but MIT's are probably more sophisticated. Computer programs in each system produce the same result, but MIT's are different due to the skew aspect of its system.

• **Terrain representation**—The all important digitized terrain model in the MIT system can be obtained by reading random points, points on a square or rectangular grid, and random points (terrain breaks) on parallel or non-parallel lines. Degree of approximation permitted and nature of the terrain are the prime factors influencing a choice of system and density of points read. A systematic pattern of points is easiest to procure and handle but may not be as accurate as random points on slope breaks.

In the prototype setup that it is hurrying to complete (because of the urgencies of the interstate highway program), MIT's photogrammetry and computer specialists are utilizing random points on parallel, but not equally spaced, lines. It should be noted that this system will also operate with a grid since these are but specialized cases, and that the skewness of the

NEW!





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entire setup is no burden to the highway engineer, only to the computer programmer.

An important economic aspect of the MIT system appears to be the time required to obtain point information from the stereomodels. Its developers believe that 50 points along a skew section can be read in four minutes plus an extra minute to move to the next section. Research is under way on the feasibility of introducing an automatic interval device in the y direction. These would position the point of light, after each readout, at a constant distance from the previous readout. Speed of readings would be increased, and if more were taken a statistical increase in accuracy might offset the missing of specific terrain breaks with the random point method.

• **Another new concept**—While carrying forward their most advanced proposal of mechanized highway design, the MIT developers are also now working on a concept of a digital cost model. In this system, the z coordinates are not feet but dollars, representing the cost of highway construction through a unit area. In addition to terrain data, cost contribution data—such as type of material and right of way—would be procured through aerial photographic z analysis. All data would be fed to an electronic computer which would select the optimum route.

The MIT work is under the direction of C. L. Miller, assistant professor of surveying and director of the Photogrammetric Laboratory. S. Namyet, assistant professor of structural engineering, is handling the data processing phase of the development. D. R. Schurz, instructor in photogrammetry, has been responsible for the instrumentation system. The Massachusetts Department of Public Works has sponsored the project.

Photogrammetric equipment employed at MIT includes a Kelsh plotter, a Nistri Electro-coordinatometer (scanning unit) and Electro-coordinatograph (to automatically plot sections). Computer equipment of various types are available from the MIT Computation Center and nearby commercial service bureaus.

Professor Miller plans to put together a complete demonstration prototype for exhibit before the next highway engineering productivity meeting September 17-19 in Boston (previous conferences were held in Chicago, Atlanta and Los Angeles under the sponsoring of the Bureau of Public Roads, the American Association of State Highway officials and various local and regional groups).

Built-in snow removal called for piping dependability —they used Wrought Iron

Not just snow melting—but *dependable* snow melting—was the leading design objective for this access ramp.

That's why designers of the new Connecticut General Life Insurance Company office building gave such careful consideration to material selection for this access ramp. Four major factors supported the use of wrought iron for this job: its corrosion-resistance—rugged strength—low coefficient of expansion with concrete—ease of fabrication.

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Concrete Bridge for Indiana County

McMahan Construction Co., with a low bid of $193,278, took this contract for a continuous reinforced concrete girder bridge over Mississinewa River in Grant County, Ind. This was 0.5% under the second bid and 19.9% below the high. This is a county highway bridge awarded by the state under the 50-50 Federal-County Aid Program. Work began on May 1, 1957, and is to be completed by Feb. 1, 1958.

This five span bridge: two at 48 ft 6 in. and three at 68 ft, has a 22 ft roadway, steel encased concrete piles at the abutments and untreated timber piles at the piers. Work includes 0.402 miles of approach grading and compacted aggregate base with hot asphaltic concrete surface. Present structure must be removed and 27,743 cu yd of waterway will have to be excavated.

Concrete accounts for 42.2% of total cost, reinforcing steel, 14.0%, excavation, 16.8%, aggregate for base course, 4.6% and steel pile shells, furnished and driven, 3.8%. Timber piles, furnished and driven take 2.0% of the total bid and hot asphaltic binder 2.5%.

Specifications require that E concrete contain 5 bags of cement, D, 6 bags and F, 7 bags.

Minimum wage rates are $1.25 for common labor, $1.35 for semi-skilled and $1.50 for skilled labor.

The seven bidders include:

1C	McMahan Const. Co., Rochester, Ind.	$193,278
2	Smith & Johnson, Inc., Indianapolis, Ind.	194,195
7	Morris Prosser Contr., Inc., Franklin, Ind.	241,196
EE	Indiana State Highway Department	218,182

Bids: 4-9-57 Items	Unit	Quantity	Unit Prices 1C	2
Conc, cl F	cy	493.2	$80.00	$80.00
cl D	cy	71.8	70.00	65.00
cl E above footings	cy	242.6	60.00	55.00
cl E in footings	cy	126.0	50.00	50.00
railing	lf	655.8	11.00	12.00
cl D in structures	cy	4.8	80.00	100.00
slopewall, 8"	sy	1,410	6.00	6.50
Steel, reinforcing	lb	206,934	0.13	0.135
structural	lb	8,098	0.60	0.40
pile shells, furn.	lf	920	5.00	4.60
pile shells, drive	lf	920	3.00	2.00
Cast iron	lb	642	0.50	0.50
Untreated timber piles, f	lf	2,880	0.80	0.80
d	lf	2,304	0.70	0.60
Furn equip for driving piles	ls	job	500.00	300.00
Exc, wet	cy	500	16.00	13.00
waterway	cy	27,743	0.55	0.80
common	cy	12,064	0.75	0.60
Borrow, special gr B	cy	1,500	1.50	0.10
Sodding	sy	730	0.60	0.70
Thickened rein cem conc pavt	sy	95.8	6.60	6.50
Aggr for comp aggr base	t	2,680	3.30	4.20
Removal present struct	ls	job	8,000	6,000
Warning signs	ea	6	50.00	60.00
Std barricades, type A	ea	2	100.00	100.00
Paved side ditch, type A	lf	2,055	2.65	3.00
Pipe, cl 5, 12"	lf	68	3.25	3.50
18"	lf	114	5.00	4.50
24"	lf	70	7.00	6.00
Guard rail steel beam	lf	920	3.30	3.75
Hot asphaltic conc binder	t	435	11.00	11.50
Bit matl for prime	t	7.5	48.00	50.00
Aggr for shoulder drains	t	14	5.00	6.00
Monument, type C	ea	1	25.00	40.00
Joint, expansion 1", cork, cork-rubber or fiber	lf	40	1.25	1.00

Completion Schedule: 5-1-57 to 2-1-58

Water Distribution Expansion in Iowa

This water system expansion for Iowa Falls, Ia., involves laying parallel 8 in. and 12 in mains in the bed of the Iowa River where the crossing is 240 ft wide. About 25% of the trenching will be in soft rock. Collins, Thompson & Willis, Marshalltown, Ia., is the consulting engineer. The contract went to Stanfield-Pyland Construction Co. of Des Moines at $94,523. This low bid is 10% under the engineers' estimate and 2½% under the second bid.

Work includes 3,984 ft of 12 in., 5,168 ft of 8 in., 2,720 ft of 6 in., 352 ft of 4 in. mechanical joint, cast iron pipe along with valves, fittings, hydrants and a pump house. Concrete must test at 4,000 lb at 28 days. The job is two miles from the nearest railhead.

The three bidders were:

1C	Stanfield-Pyland, Des Moines, Ia.	$94,520
2	Welden Bros., Iowa Falls, Ia.	97,200
3	Ernster and Co., Waterloo, Ia.	149,848
EE	Collins, Thompson & Willis, Marshalltown, Ia.	105,000

Bids: 6-24-57 Items	Unit	Quantity	Unit Prices 1C	2
Pump house, 11' x 13'	ls	job	$2,935	$2,800
MH st'd valve	ea	3	166.00	300.00
spec valve	ea	3	637.50	460.00
Pipe 12" cl 22	lf	3,520	6.93	7.30
cl 24	lf	464	13.35	8.00
8" cl 22	lf	4,816	5.08	5.00
cl 24	lf	352	9.83	5.50
6" cl 22	lf	2,720	3.90	3.80
4" cl 22	lf	352	2.31	2.50
plastic 1½"	lf	1,200	0.50	0.50
Hydrants 8"	ea	11	237.00	200.00
4"	ea	1	200.00	160.00
Valves & fittings	ls	job	9,222	7,670
River Xing extra	ls	1	3,924	12,700
Elk Run Xing extra	ls	1	1,190	1,400
Paving replace conc	sy	100	12.00	5.00
asphalt	sy	50	6.00	5.00

Completion Schedule: 7-15-57 to 11-1-57
Liquidated Damages: $100 per day

Milwaukee Pier Dredged Bulkheaded and Backfilled

This $2,419,900 contract to Great Lakes Dredge & Dock Co., Milwaukee, is for bulkhead, dredging and backfill construction of South Pier No. 2 Ocean Cargo Terminal, Milwaukee. R. G. Krahn is harbor engineer. Lockwood, Andrews & Newman, Houston, Tex. are the consultants. This is to be a 520′ x 1,000′ solid fill pier.

The bidding was close:

1C	Great Lakes Dredge & Dock Co., Milwaukee, Wis.	$2,419,900
2	Fitz Simons Dredge & Dock, Chicago	2,508,975

Bids: 7-23-57 Item	Unit	Quantity	Unit Prices 1C	2
Steel bulkhead & anchorage	lf	2,573	$452.00	$458.56
Dredging and backfill	cy	78,000	1.85	1.85
Backfill, sand, rob gravel	t	380,000	2.11	2.30
Dredge addl & dump waste	cy	168,000	1.85	1.85
Pile foundations, platforms	ls	job	570,400*	508,700*

* Not incl. in contract

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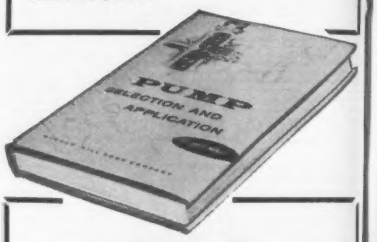

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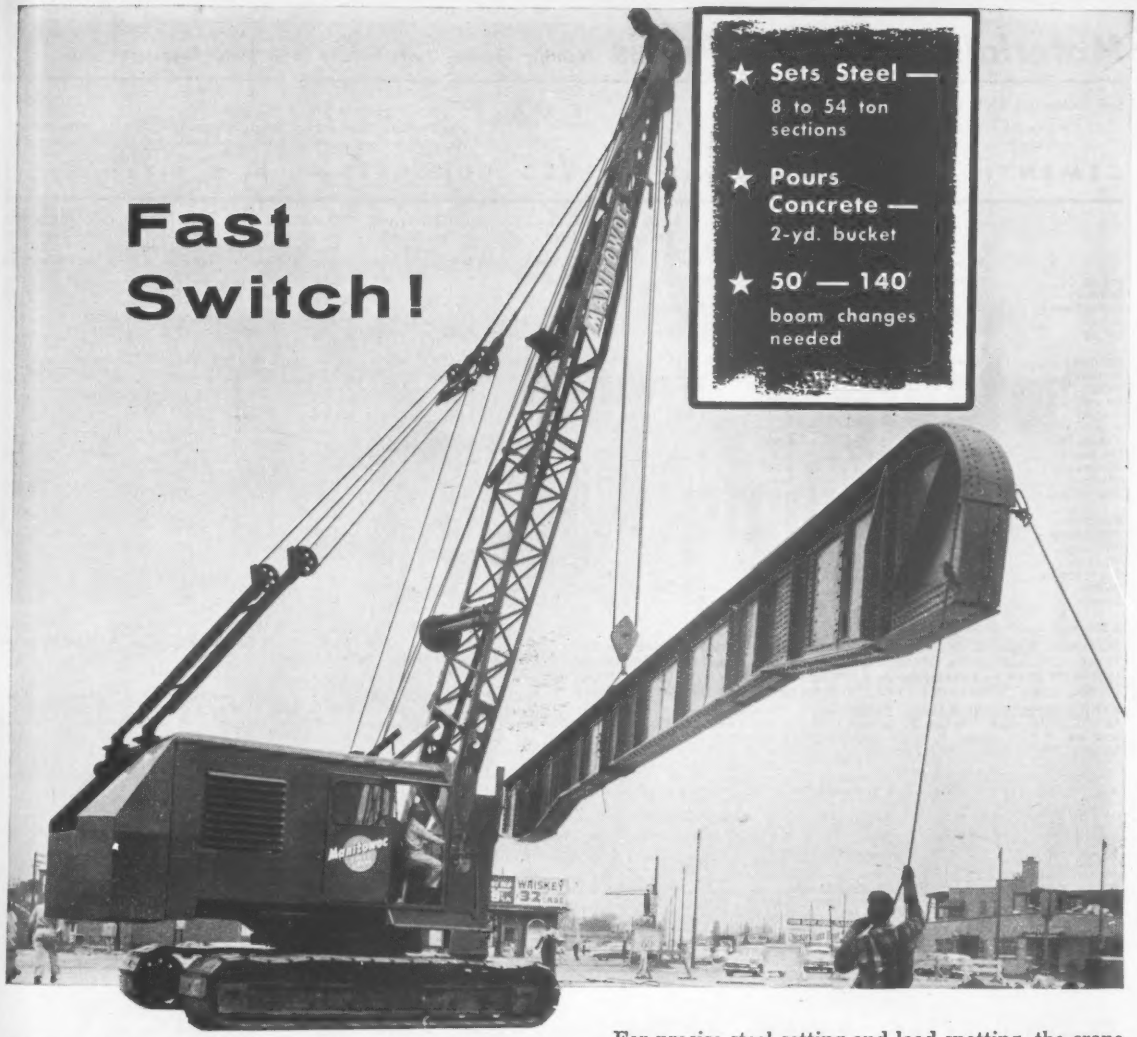

There's a real "quick change artist" geting many jobs done fast on Chicago's Calumet Skyway project. This versatile performer is a Manitowoc Model 3500 60-ton crane operated by Arcole-Midwest Corporation of Skokie, Ill. — Arnold Kincaid, Supt. of Equipment. Equipped with a 50′ boom, the crane sets 8-ton longitudinal and 54-ton support girders for the elevated structure. A quick change to an 80′ boom with a 15′ jib or a 140′ boom, and the rig is ready for high lift concrete pouring with a 2-yd. bucket.

"The Manitowoc 3500 has demonstrated its versatility in multiple use over the long haul," says Arcole-Midwest operator Frank Dauksch. "Its combined advantages of quick interchangeability of lines and booms, plus completely dependable operation make it the ideal single unit for a job with many aspects such as ours. Boom changes of 50′ to 140′ can be made without touching the removable counterweight—there's no downtime resulting from laboriously hauling and adding counterbalance weights. With proper steel schedules, we could easily set up 500 tons per day — enough to complete this job in a week's time."

Boom length changes are simple. Both flanges and pendant lines fit together quickly without tediously re-reeving cable every time. Using only three men, Arcole-Midwest can add another boom segment in just two hours, with a 30% labor cost saving over previous machines used.

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"The mobility of the Model 3500 from job to job is higher than any other machine I have worked with," says Dauksch. "The rig can remove its own track assembly for flat car loading — the only crane to my knowledge that can do this. With our Manitowoc, we can load for shipment without bringing in another crane on the job, saving over $300 in rental cost. On the whole, this Manitowoc is the smoothest working machine made, with many practical refinements that make is *vastly superior* to any other crane we've used."

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Birmingham	4.08	3.15	....	2.53n	2.53n	2.13n	2.75	2.75	1.55	1.65	.18	.18	12.55
Boston	5.75‡e	4.67a	4.79e	3.00a	3.00a	3.00a	1.75a	1.85a	....	....	.23	.275a	15.00h
Chicago	4.13a	3.72a	3.65/3.78	3.78‡b	3.78‡b	4.13‡b	3.95‡b	3.95‡b	2.25‡	2.25‡	.25	.25b	13.50
Cincinnati	4.46c	4.05c	4.03	2.29‡c	2.34‡c	2.34‡c	2.64‡c	2.64‡c	1.89	1.89	.19	.24a	13.25
Cleveland	N.A. in C.L.	....	3.88c	2.15ef	1.95f	1.65	4.50‡a	4.50‡a	3.35‡a	3.35‡a	....	.23	16.15
Dallas	3.55a	3.15a	3.43	2.60	2.65	1.90	2.43	2.63	....	....	....	.27	11.25
Denver	4.69a	4.19a	4.69	1.90	2.05	1.20	....	....	....	....	.22	.345a	10.70
Detroit	4.10a	3.60ag	3.73	4.50‡b	4.50‡b	4.25‡b	3.75‡	3.75‡	3.50‡	3.50‡	.23	.34a	14.20
Kansas City	4.45i	3.96a	4.25	....	....	1.70‡a	2.00‡a	2.00‡a	....	....	.23a	.26c	14.00
Los Angeles	5.12ch	4.68ch	5.60	2.41‡a	2.76‡a	2.41‡a	2.41‡a	2.46‡a	....	....	.19/m	.24m	12.90h
Minneapolis	4.44a	4.04a	4.10	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	....	....	.16	....	14.30f
Montreal	3.21d	2.96d	3.60	1.95‡a	2.20‡a	2.25‡a	1.95‡i	2.20‡i	2.00	2.00	.34	.36a	10.80ak
New Orleans	3.75a	3.45a	3.70	2.44	2.44	2.00	....	....	1.45	1.65	.275	....	13.65
New York	4.83a	4.42a	3.72f	3.05bk	3.05bk	2.30bk	3.10bl	3.10bl	....	....	.265	.325	17.35an
Philadelphia	4.49/4.84‡a	4.09/4.46‡a	3.70/4.33‡	2.85‡ap	2.85‡ap	2.35‡ap	2.70‡	2.80‡	2.00	2.35	.24/.30	....	13.80de
Pittsburgh	5.50bjk	4.47bj	5.00bjl	2.60aq	2.60aq	3.00aq	2.00e	2.00e	2.10	2.10	.26	.28	15.55
St. Louis	4 01/4.33c	3.61/3.93c	3.86/4.18	3.25am	3.10am	2.40/3.10am	1.60j	1.70j	....	....	.24	.30c	12.40/12.90
San Francisco	3.94e	3.54e	4.38e	2.02	2.02	2.12	2.17	2.17	....	....	.24	.28el	12.75c
Seattle	4.30a	3.75a	4.45a	4.00‡bm	4.00‡bm	4.00‡bm	4.50‡bm	4.50‡bm	....	....	.26	.37c	13.30g
Toronto	4.03	4.03	4.03	2.40‡	2.40‡	2.05‡	2.20	2.20	2.20	2.20	.35	.275a	15.25

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots *f Fob mill, add 13.89 to $20.30 per car switching charges *g fob mill + freight *h LCL. *i Less 2% disc, 10 days *j Truck lots, fob yard *k 100 bag lots *l Over 150 sacks ℄ Correction

SAND GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons or more. *d ½". *f Pea gravel. *g Less 5% for cash. *h Less than 5 tons. *i Plus 5% mun. & prov. tax *j F.o.b. quarry. *k Barge lots and. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *o 1–3 mi zone. *p Add 10¢ for ea. add'l mi zone. *q Job yard

CONCRETE BLOCK: *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 8½ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *i Less 2% for cash *l F.o.b. plant San Rafael. *m F.o.b. yard.

READY MIXED CONCRETE: *a 5 cu. yds. or over del. Man. *b 26 cu. yds or more *c 10–100 cy. brackets. *d 2,000 lb comp. *f 2,500 lb. comp. *g Less 25¢ disc, 15 days. *h Less 50c for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mun. & prov. tax *l 1:2½:3½. *m F.o.b. yard. *n Plus escalator clause. *o Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.30†	Buffington, Ind	$3.25†	Steelton, Minn	$3.45†	Muskegon, Mich	$3.30†	Toledo, O	$3.30†
Clinchfield, Ga	3.30†	Independence, Kan	3.10†	Leeds, Ala	3.15†	Saginaw, Mich	3.30†	Milwaukee, Wis	3.35†
Kingsport, Tenn	3.30†	Hannibal, Mo	3.35†	Duluth, Minn	3.45†	Wyandotte, Mich	3.30†	Green Bay, Wis	3.35†
West Des Moines, Iowa	3.35†	Northampton, Pa	3.35†	Hudson, N. Y	3.35†	Buffalo, N. Y	3.40†	Ironton, O	3.30†
Nazareth, Pa	3.35†	Universal, Pa	3.45†	Alpena, Mich	3.20†	Oswego, N. Y	3.45†	Montreal City	3.50†
Bath, Pa	3.35†	Waco, Tex. (+ 10¢ tax)	3.35†	Detroit, Mich	3.30†	Cleveland, O	3.35†	W. Winfield, Pa	3.45†
Lesley, Pa	3.35†	Giant, S. C	3.35†	Howes Cave, N. Y	3.35†	Alsen, N. Y	3.35†	Security, Md	3.35†

† *Prices to hold for third quarter of* 1957.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 80,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 10-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	.....	.....	.....	$30.50	$45.00	$0.15	$0.26	$0.125Pw	$0.28Pw	$0.14	$0.125	$0.30
Baltimore	180.00‡	.....	.....	23.00i	.....	.095i	0.185i	.10iwE	.19iwE	.10i	.105i	0.195i
Birmingham	.....	92.00i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.00ap	46.00ap	24.00as	46.00as	.11aPw	.24aPw	.11ao	.174aGo	.35aGo
Chicago	180.00‡	90.00‡b	3.95/4.00‡j	24.25b	34.25b	21.40bv	31.40bv	.11bwH	.19bwH	.085b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	.....	82.00d	6.30g	25.00A	.....	25.00A	.....	.1115AwF	.....	.....	.1115AG	.314G
Dallas	e	40.00	e	26.35	45.39	.1116	.1944	29.80	51.40	.1080	.1116	.1994
Denver	.....	56.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	113.00	.....	32.45	.....	32.45s	.....	.1361wI	.....	.1133	.....	.35
Kansas City	e	e	e	18.00cl	.....	18 00s	.....	.0925cwJ	.....	.085c	0.125o	.....
Los Angeles	e	.....	e	21.00dms	.....	21.00dxs	.....	22.50dzK	.....	21.50ds	.097	.197
Minneapolis	.....	.....	3.73h	29.50	.....	29.50	.....	0.125w	.....	0.115	.134	.....
Montreal	e	e	e	32.50n	44.80n	.176n	.226n	18.70nuE	23.70nuE	.154n	.242ns	.37ns
New Orleans	.....	.....	.....	20.00e	.....e	20.00ev	.....e	.095ew	.....e	.085BL	.095BL	.....
New York	.....	.....	3.70f	26.89qCD	47.32qD	26.89stCD	47.32stD	.1273wCDF	.2139wDF	.....	.1273CD	.2161D
Philadelphia	175/185	110/120	4.06	24.00	.....	24.00	.....	.11uF	.....	.105	.....	.....
Pittsburgh	80.00k	99.12ln	6.35	28.30i	.....	30.90is	.....	.1351i	.....	.14R	.1351i	.....
St. Louis	.....	.....	.....	22.90f	.....	.1825	.....	.1035fwM	.....	0.165	.325	.....
San Francisco	.....	70.00c	.....	23.00g	40.00g	23.00gks	40.00gks	24.00gN	41.50gN	23.75ag	.10y	.19y
Seattle	.....	.....	.....	27.00s	40.50k	27.00s	.....	28.50K	.....	24.75ks	.10k	.11w
Toronto	.....	123.00	4.50	40.10	59.38	0.2004	0.2445	0.214w	0.258w	0.198r	0.216	.271

‡ Delivered.

PAVING BRICK & BLOCK: *b 3 x 4 x 8. *c 2¼ x 8¼ x 4. *d LCL, truck deliveries. *e Not used. *f 2" interior 6# treat. *g 3" *h 2" tr, 8# *i 3 x 3½ x 8½. *j 2½", 8 lb. tr. *k Used. *l Redshale; clay $101.32. *m Pine; oak $8.57. *n Truck del.

ASPHALTS: *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge. *f F.o.b. Wood River, Ill. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Inglewood, Calif. *k 50–110 penetr. *l Less than 100 penetr. *m 40/80 penetr. *n Fed. tax included; add 5% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60/70 penetr. *q 40/300 penetr. *r Is customer's drums. *s Shipped in drums, per drum. *t 85/300 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland. *z F.o.b. Edmonds. *A F.o.b. refinery, Cleveland. *B F.o.b. Destrehan, La. *E RC. *F Also RC. *G Also MS, SS. *H RC 0–5 incl. *I MC 4. *J MC, RC $0.095 *K MC 3, 4 & 5. *L MS. *M MC 1–5, RC 1–5, $0.106. *N MC 3. *O Truckload. *P F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums. *Q F.o.b. Eldorado, Ark. *R Del'd.

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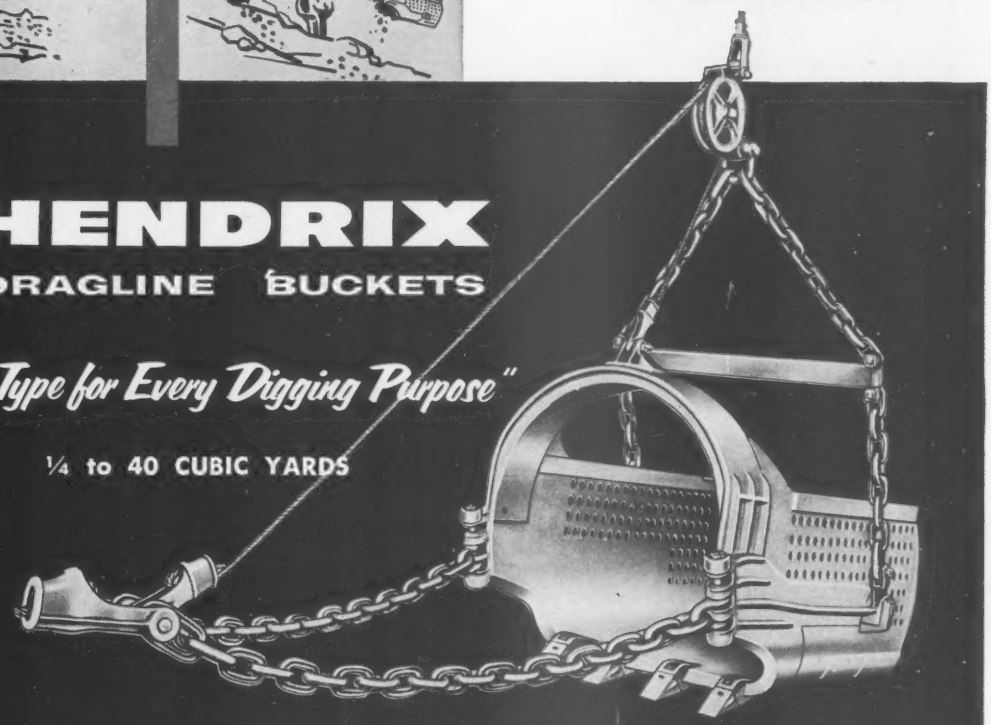
HENDRIX

DRAGLINE BUCKETS

"A Type for Every Digging Purpose"

¼ to 40 CUBIC YARDS



All Hendrix Buckets available without perforations

Hendrix Lightweight Dragline Buckets

HENDRIX MANUFACTURING CO., Inc.

MANSFIELD, LOUISIANA

San Francisco garage demonstrates **Three k**

of fir plywood c

Fir plywood forms produced super-smooth concrete surfaces, helped speed construction of this San Francisco parking garage.

DOWN
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ee key advantages od concrete forms

garage.

1. speed of construction

Forms of 5/8" fir plywood were specified for pouring on San Francisco's unique 11-level Downtown Center Garage. George A. Gore, head of the managing firm for the privately owned self-service parking structure, reports construction costs of approximately $1,400 per car stall. Fir plywood permitted speedy erection and demounting of form sections.

2. smooth concrete surfaces

Because of fir plywood forms and the use of vibrators, concrete surfaces were exceptionally smooth. No plaster was required. A rubber-base synthetic paint was sprayed directly onto the concrete.

3. economy through re-use

Caps, twelve feet on a side, were formed with fir plywood on the tops of supporting columns. These forms gave 10 re-uses; five pours were possible with the plywood forms used on larger surfaces. More than 16,000 cu. yds. of concrete went into the structure.

Open construction removed the necessity for mechanical ventilation on this unusual structure. The garage has room for 1200 cars on the eleven levels; the area per car stall, including space for aisles, ramps and driveways, totals about 350 square feet.

Opened in March of 1955 after a year under construction, the building has attracted world-wide attention because of its unique spiral ramp design and low manpower operating requirements.

Further studies by architect George A. Applegarth, San Francisco, indicate that similar structures could be built, with fir plywood forms, at a cost as low as $2.50 per square foot.

DFPA TESTED QUALITY

ALWAYS SPECIFY BY DFPA GRADE-TRADEMARKS

INTERIOR PLYFORM®—standard concrete form grade made with moisture-resistant glue. Gives multiple (10-12) re-uses.

EXTERIOR PLYFORM®—standard form grade made with waterproof glue. Gives maximum (25 or more) re-uses.

OVERLAID FIR PLYWOOD—special panel with hard, glossy fused resin-fiber surfaces. Waterproof glue. Up to 200 re-uses.

FOR YOUR FILES: Complete application-specification-design portfolio assembly. Write (U.S.A. Only) Douglas Fir Plywood Association, Tacoma 2, Washington, Dept. 135.

DOWNTOWN CENTER GARAGE
LOCATION: San Francisco, California
ARCHITECT: George A. Applegarth, San Francisco
CONTRACTOR: Cahill Construction Co., San Francisco

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, S. N. NOLAN, Reports
I. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **N. H., Portsmouth**—GROUNDWAYS—BA 9/10—First Naval Dist. Pub. Wks. Office, IND, 495 Summer St., Boston 10, Mass., repairs to Groundways Nos. 1 and 3, Portsmouth Naval Shipyard, NBy 14297, Spec. No 14297/57.

† **Me., Limestone**—MARKING—BA On Or About 9/12—U. S. Eng., 150 Causeway St., Boston 14, Mass., clear zone marking for D. C. Maintenance Hangar Sliding Doors, Loring Air Force Base, ENG-19-016-58-24.

† **N. H., Portsmouth**—HEADQUARTERS—BA On Or About 9/13—U. S. Eng., 150 Causeway St., Boston 14, Mass., misc. repairs to base headquarters bldg., Portsmouth Air Force Base, ENG-19-016-58-19. CD 2/16/55.

BUILDINGS—BA

▲ **R. I., Howard**—HOSPITAL—BA 9/25—State R. I. & Prov. Plants, Div. Purchase, State House, Providence, Proj. No. HOS 4:0/1-2-3&4, Geriatrics Bldg. No. 2, R. I. State Hospital. $1,000,000. Plans deposit $50 each proj. Oresto DiSala, 7-3 Gardner Bldg., Providence, archt. CD 5/9/56.

HEAVY CONSTRUCTION—LB & CA

W. H. Hinman, Inc., 58 Main St., Westbrook, Me., LB $84,838, paving parking aprons and runway at airport, LEWISTON, ME. Cities Auburn and Lewiston, City Mgr., City Bldg., Auburn, Me. U. U. Wiesendanger, East Winthrop, Me., engr. Bids Aug. 20.

▲ **VERMONT**—State Dpt. Hys., State House, Montpelier, bids opened 8/23,

Lane Constr. Corp., 965 East Main St., Meriden, Conn., LB $2,412,772; grading, draining, sub-base with b. conc. surf. course and two 3 span steel I-beam structures with concrete floor and two 2-span steel I-beam structures with concrete floor, approx. 5.879 mi. northerly of Mass.-Vt. state line and extending northerly 1.942 mi. on Bernardston, Mass.-Brattleboro, Vt. Rd. CD 7/31.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 8/20,

Constructors, Inc., 421 Massachusetts Ave., Lexington, Mass., LB $165,923, est. $209,994, hy. and bridge relocation, Palmer St. over Quaboag River, Palmer. CD 8/13.

CONNECTICUT—State Hy. Comn., 165 Capitol Ave., Hartford, Bids opened Aug. 19,

Conn.—Palmer Tarinelli Constr. Co., Inc., 144 Island Brook Ave., Bridgeport, Conn., LB $785,444 (3 bidders) Proj. 56-48, 2-span welded plate girder bridge over Miamus River approx. 1,250 lin. ft. c. conc. Rt. U. S. 1, FAP U 29 (7) Cos Cob;

Conn.—Brookside Constr. Co., 490 Roberts St., East Hartford, Conn., LB $139,436 (5 bidders) Proj. 96-76, precast, prestressed concrete bridge over N. Y., N. H. & H. R. R., 800 lin. ft. hot b. conc. approaches on Mile Hill Rd., Newtown. CD 8/2.

CONNECTICUT—State Hy. Comn., 165 Capitol Ave., Hartford,

Broadway Maintenance Co., 22-09 Bridge Plaza North, Long Island City, N. Y., CA $317,341, Projs. 309-09 and 308-09, hy. illumination, Connecticut Turnpike, Sections 309, 310 and 308, Bridgeport, Fairfield and Westport. Bids July 22, awarded Aug. 19. CD 8/1, under LB.

CONNECTICUT—State Hy. Comn., 165 Capitol Ave., Hartford,

National Fence Co., 33 S. Grove St., Meriden, Conn., LB $106,590 (2 bidders) Proj. 56-59, metal beam type railing on Merritt Parkway, Greenwich, Stamford, New Canaan, Norwalk, Fairfield and Trumbull. Bids Aug. 19. CD 8/7.

▲ **CONNECTICUT**—State Hy. Comn., 165 Capitol Ave., Hartford, Bids opened Aug. 19.

Conn.—L. G. DeFelice & Son Inc., Nettleton Ave., North Haven, Conn., LB $793,135 (6 bidders) Proj. 44-74, grading, drainage, c. conc. paving 5,700 lin. ft. Rocky Neck connector to Conn. Turnpike incl. grade separation structure over Connecticut Turnpike East Lyme;

Conn.—Arute Bros. Inc., 560 S. Main St., New Britain, Conn., LB $615,338 (7 bidders) Proj. 152-44, grading, drainage, b. conc. paving 5,334 lin. ft. on Montville connector to Conn. Turnpike incl. grade separation structure at Route 32, Waterford;

Conn.—General Electric Co., 764 Asylum Ave., Hartford, Conn., LB $155,700 (6 bidders) Proj. 215-44 luminaires for Connecticut Turnpike, Greenwich to Branford;

Conn.—Graybar Electric Co. Inc., 420 Lexington Ave., New York, N. Y., LB $155,700. Identical bid, Proj. 215-44, luminaires for Connecticut Turnpike, Greenwich to Branford. CD 8/2.

Savin Bros. Inc., 410 Asylum St., Hartford, Conn., LB $807,424 (2 bidders) toll plazas and toll plazas buildings, Founders & Bulkeley Bridges, East Hartford, HARTFORD, CONN; Greater Hartford Bridge Auth., 70 Capitol Ave., Hartford, Conn. Bids Aug 15. CD 8/1.

Wexler Constr. Co., 118 Needham St., Newton Highlands, Mass., LB $233,522 (2 bidders) toll plaza and toll plaza building, Wolcott Ave. Bridge, South Windsor, HARTFORD, CONN. Greater Hartford Bridge Auth., 70 Capitol Ave., Hartford, Conn. Bids Aug. 19. CD 8/6.

BUILDINGS—LB & CA

Consolidated Constructors Inc., 807 Congress St., Portland, Me., CA $761,609, est. $700,000, HOSPITAL ADDN., and alterations, Maple St., ROCKLAND, ME. Knox County General Hospital 2 Maple St., Rockland, Me. Bids July 18. CD 7/25, under LB.

Colby College, Mayflower Hill, Waterville, Me. Separate Contracts, $900,000, SOCIAL SCIENCE BLDG., Campus, WATERVILLE, ME. J. Frederick Larsen, Reynolds, N. C., archt. CD 5/9.

Charles H. Cunningham Constr. Co., Inc., Mill Pond Rd., West Yarmouth, Mass., CA $753,800, ELEMENTARY SCHOOL, Davisville Rd., East Falmouth, FALMOUTH, MASS., Town, School Bldg. Needs Comm., Town Hall, Falmouth, Mass. Bids Aug. 15. CD 8/22, under LB

Champy Constr. Co., 55 South Canal St., Lawrence, Mass., CA Approx. $600,000, remodeling former ARLINGTON MILLS BLDG., No. 6, LAWRENCE, MASS. Greater Lawrence Industrial Assoc., Inc., 500 Broadway, Lawrence, Mass. Northeast Service Center Internal Revenue Service, 6 Lake St., Lawrence, Mass., lessee. CD 8/1.

J. Slotnik Co., 99 Chauncy St., Boston, Mass., LB $598,000, HOSPITAL addn., alterations, NEWTON, MASS. Newton-Wellesley Hospital, 2014 Washington St., Newton, Mass. Bids Aug. 21. CD 8/1.

Lilly Constr. Co., 110 Western Ave., Allston, Mass., CA $500,000, MANUFACTURING BLDG., off Boston Turnpike, SHREWSBURY, MASS. Phalo Plastics Corp., 25 Foster St., Worcester, Mass. CD 10/10.

Casey Constr. Co., 2341 Whitney Ave., Hamden, Conn., CA $620,000. 62 HOUSES "Lane Manor", Sections 2 and 3, Gilbert Ave., HAMDEN, CONN. Lane Manor, Gilbert Ave., Hamden, Conn. CD 1/16.

Ross Hahn, 48 Sanford Rd., Manchester, Conn. Owner Builds, $361,200. 21 HOUSES, "Garden Hill Estates", Cherry Hill Rd., MIDDLEFIELD, CONN.

Ames Constr. Co., 15 Standish St., Hartford, Conn., LB $388,728 (6 bidders) moderate rental HOUSING, Chamberlain Rd., SEYMOUR, CONN. Seymour Housing Auth., 34 Second St., Seymour, Conn. Bids Aug. 21. CD 8/5.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† **New Jersey**—BA On Or About 9/18—U. S. Eng., 111 E. 16th St., New York 3, N. Y., dredging to a depth of 25 ft. at mean low water involving removal of approx. 188,600 cubic yds., place measurement, of all material except ledge rock from South Channel, Raritan River, Middlesex Co., CIVENG-30-075-58-17.

BUILDINGS—BA

Md., Marlboro—SCHOOL—BA 9/25—Prince George's Bd. Educ., Marlboro, Carmody Hills elementary school and Seabrook Acres elementary school. Plans deposit $25. Paul Kea, 5109 Baltimore Ave., Hyattsville, Md., archt. CD 10/4/56.

BUILDINGS—SLC

Pa., East Oakmont—PLANT—Haskell Mfg. Co., 17 Terminal Way, Pittsburgh, soon lets contract, 1 and 2 story, 150x400 ft., metal, block, steel frame manufacturing plant in Plum Twp. Nathon Cantor, 121 S. Negley Ave., Pittsburgh, archt.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany,

N. Y. –Terry Contg. Inc., 31 E. 27 St., New York 16, N. Y., CA $3,460,942. twin-2 lane, 30 ft. wide, 5-span 1,135 ft. welded plate girder open deck bridges to carry Route 9 over Mohawk at Crescent, replacing present narrow 2-lane structure 0.44 mi., Albany and Saratoga Counties;

N. Y.—Johnson, Drake & Piper Inc., 86 Trinity Pl., New York 6, N. Y., CA $8,812,605, 6-lane divided section 0.77 mi. Niagara Thruway in Buffalo between Louisiana and Washington Sts. incl. 39 span 2,670 ft. viaduct between Chicago and Washington Sts. and 65 concrete piers for access ramps in vicinity of Exchange St., Erie Co. Bids July 18. CD 7/23, under LB.

City, City Hall, Mount Vernon, N. Y., cancelled bids to have been opened Aug. 16, reconstr. municipal incinerator, MOUNT VERNON, N. Y. CD 8/1.

† **U. S. Eng.,** 111 E. 16 St., New York 3, N. Y., cancelled bids to have been opened on or about Sept. 18, SAC storage facilities, Griffiss Air Force Base, ENG. 30-075-58-3, ROME, N. Y., Est. $750,000-$1,000,000. CD 8/16.

Dan Sciullo & Co. Inc., 337 Canterbury Dr., Blawnox, Pa., CA Est. $154,682, water distr. sys., water lines, Richland Twp., GIBSONIA, PA. Richland Twp. Muncipal Auth., Gibsonia, Pa. Wm. J. Murdoch, 600 Grant St., Pittsburgh, engr.

Marino Masse Inc., 4418 N. American St., Phila. 40, Pa., CA $103,622, Bid 2864, grading and sewer constr. in Vicaria St. from Lauriston St. to cul-de-sac N. of Salaignac St., etc. PHILA, PA. Dpt. Procurement, City Hall Annex, Phila., Pa. CD 1/31/45.

BUILDINGS—LB & CA

Smith Langhan & McLoughlin Constr. Co., 196 W. 6 St., Corning, N. Y., LB $478,000 general contract, elementary SCHOOL and bus garage, ADDISON, N. Y. Central School Dist. No. 1, Towns of Addison, Cameron, Rathbone, Tuscarora, Woodhull, Thurston, Erwin, Lindley & Casisteo in Steuben Co., High School, Addison, N. Y. Bids Aug. 1. CD 7/19.

▲ **Kings Bay Housing Co.,** 97-27 64 Rd., Forest Hill, N. Y., Owner Builds, $2,300,000, 8 story APARTMENT HOUSE, 2520-60 Batchelder Ave., BROOKLYN, N. Y. S. J. Kessler & Sons, 551 Fifth Ave., New York, Zone 17, archts.

George W. Walker & Sons Inc., 770 Elmwood Ave., Buffalo 22, N. Y., CA $784,500. Division MAINTENANCE bldg., State Thruway Auth., BUFFALO, N. Y. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office, Albany, N. Y. Bids June 27. CD 7/3, under LB.

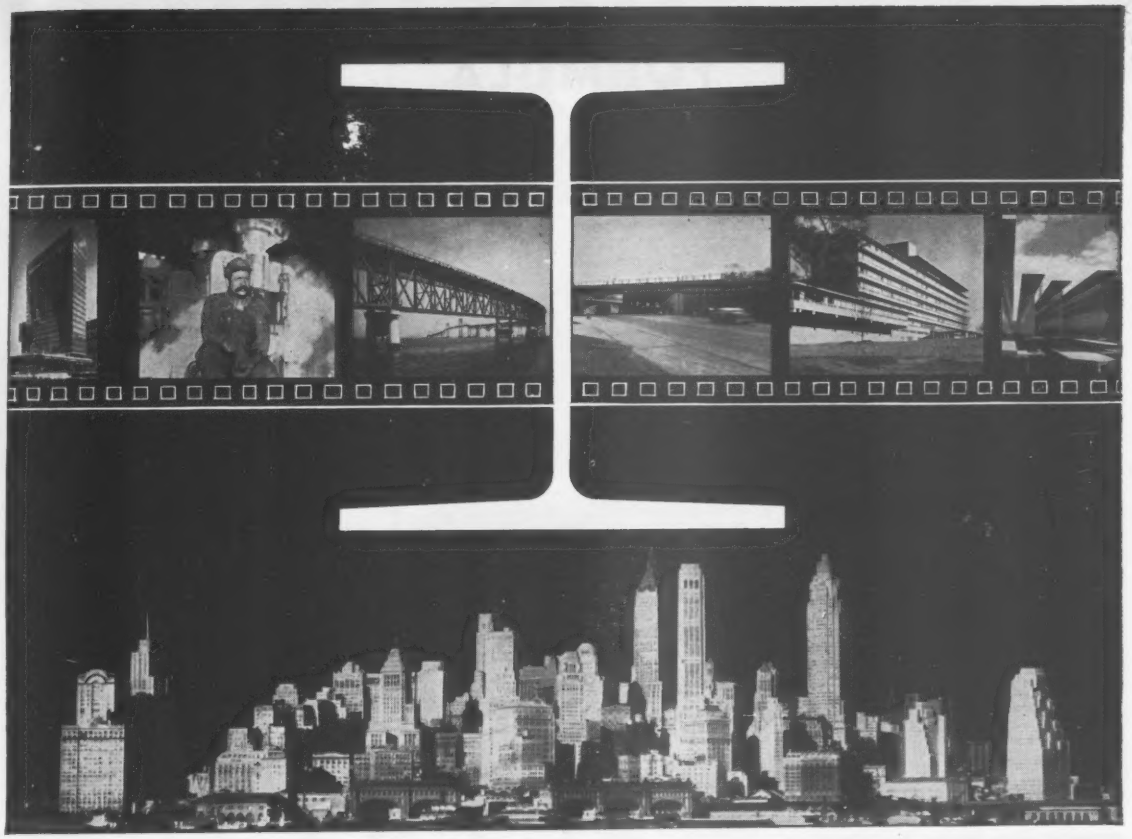
▲ **Roger & McCay,** 19 W. 44 St., New York, N. Y., LB $1,234,000. two DORMITORIES, one at Water St. and one at Broadway, Cortland State Teachers College, CORTLAND, N. Y. State Dormitory Auth., 55 Grant Ave., Albany, N. Y. Bids Aug. 15. Carl Larson, State Office Bldg., Albany, state archt. and Carl W. Clark, James St., Syracuse, archt.

Beauty Builders, Corp., 2537 Hering Ave., New York 67, N. Y., Owner Builds, $442,000. 34 HOUSES at Stadium Ave. and Country Club Rd., NEW YORK, N. Y. Robert Gottlieb, 1924 Washington Ave., New York, Zone 57, archt.

▲ **James King & Son, Inc.,** 350 Fifth Ave., New York 1, N. Y., CA Est. $1,200,000. air-conditioning and heating system for New York Central OFFICE BLDG., Park Ave. and 45 St., NEW YORK, N. Y. New York Central Railroad Co., 230 Park Ave., New York 17, N. Y. Cusentini Associates, 10 Columbus Circle, New York 19, N. Y., engrs. CD 5/24.

Second Manhattan Corp., 270 E. 161 St., New York, N. Y. Separate Contracts. $650,000. 6 story

(Continued on page 108)



New Film Tells Story of Steel and the Nation's Skyline

A new Bethlehem motion picture, *Skylines*, is now available for showing.

Skylines is a 29-minute sound-and-color film that dramatically portrays the role of structural steel in building the skylines of today.

The picture tells how large multistory buildings were not practical until builders gave up the compression structure and began working with steel framework.

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But skyscrapers are only a part of the story of *Skylines*. There are bridges, too—from giants like the Golden Gate and Chesapeake Bay to the thousands of railway and highway bridges all over the country.

And there is the story of today's bold new concepts in building—modern shopping centers, industrial buildings, hospitals, apartments and schools.

FREE ON REQUEST—There is no charge for the use of this 16-mm film. We suggest that prints be ordered at least three weeks in advance of your desired showing date, to allow ample time for scheduling and shipping. Please fill out the coupon below and mail it to Publications Department, Bethlehem Steel Company, Bethlehem, Pa.

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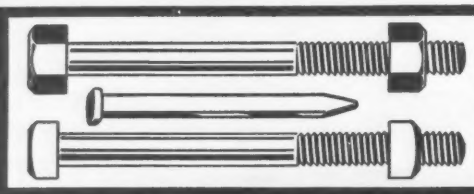

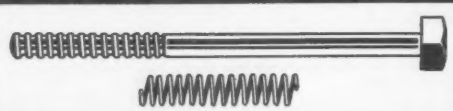

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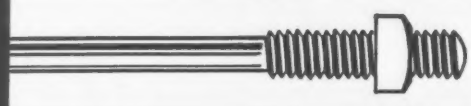

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(Continued from page 106)

APARTMENT, 310-320 E. 71 St., NEW YORK, N. Y. CD 6/7.

▲ **J. D. Taylor Constr. Co.,** 406 N. Midler Ave., Syracuse, N. Y., LB **$1,038,905** (5 bidders) general contract, technical and industrial high SCHOOL, SYRACUSE, N. Y. City, Dpt. of Educ., City Hall, Syracuse, N. Y. Bids Aug. 19. CD 8/12.

Park Lawn Homes of Basking Ridge, Inc., N. Finley Ave. or above Pompton Lakes, Basking Ridge, N. J. **$450,000,** 20 HOUSES, N. Finley Ave., as Orchard Estates, BASKING RIDGE, N. J. Theodore De Maria, operating as Park Lawn Homes, Inc., Poplar Ave., Pompton Lakes, N. J. C. J. Kordys, 116 Passaic St., Passaic, N. J., archt.

Prospect Imp. Co. Inc., 165 Mountain Ave., Somerville, N. J., Owner builds, **$555,000,** 15 HOMES on Glenwood Ave. to be known as "Glenwood Estates," SOMERVILLE, N. J., Wm. Chirgotis, 968 Stuyvesant Ave., Union, archt

▲ **Wm. F. Sutter,** Nescopeck, Pa., LB **$3,372,450.** 1 and 2 story, brick, block, concrete, steel senior high SCHOOL, BUTLER, PA. Butler Area Joint School Dist., Butler, Pa. Bids Aug. 12. Howard & Murphy, 610 Butler Co. National Bank, Butler, archts. CD 4/17, under LB.

Seltzer & Young Inc., 1316 Moravia St., New Castle, Pa., CA **$456,844.** 1 story, brick, block, steel frame elementary SCHOOL, for Valley Grove School Dist. Sugar Grove Twp., Rocky Grove, FRANKLIN, PA. State P. School Bldg., Auth. 101 S. 25 St., Harrisburg, Pa. Bids July 16. CD 7/22, under LB.

▲ **Mike Leebov Co.,** 3609 Winthrop St., Pittsburgh, Pa., LB **$471,900.** 3-level 350-car block Shaw Ave. Parking GARAGE, McKEESPORT, PA. McKeesport Parking Auth., Locust St., McKeesport, Pa. Celli-Flynn, 335 Shaw Ave., McKeesport, archts.

Warren B. Zern, Franklin Apartment, Pottstown, Pa., CA **$350,000.** ENGINEERING OFFICE BLDG., POTTSTOWN, PA. Bethlehem Steel Co., E. 8 St., Bethlehem, Pa. Sanders & Thomas Assocs., Pottstown, engr.-archts. CD 7/22, under Commercial Buildings

▲† **Community Builders Inc.,** 8605 Cameron St., Silver Spring, Md., LB **$1,030,291,** 63 family HOUSING units, ENG-49-080-58-4-(3), FORT DETRICK, MD, U. S. Eng., First & Douglas Sts., N.W. Wash., D C. Bids Aug. 22. CD 8/1.

L. J. Keller & Sons, Jefferson, Md., LB **$713,000,** (5 bidders), general contract, masonry, brick, conc. steel, block Francis Scott Key High SCHOOL, WESTMINISTER, MD. Carroll Co., Bd. Educ., Westminister, Md., B. E. Starr, 410 N 2nd St., Harrisburg, Pa., archt.

SOUTH

HEAVY CONSTRUCTION—BA

La., Shreveport—BA 9/19—Caddo Levee Dist., Courthouse Bldg., Shreveport, imprv. 12 mi. Bayou Levee and Borrow Pit, incl. 354,000 cu. yds. of channel excavation.

La., Lake Charles—BA 10/3—Gravity Drainage Districts No. 4, 1 & 2, Lake Charles, Kayouche Coulee pumping station. Plans deposit $75. D. W. Jessen, 809 Ryan St., Lake Charles, engr. CD 8/9.

BUILDINGS—BA

Fla., Pensacola—WAREHOUSE—BA 9/4—National Biscuit Co., Attn. Mr. R. L. Wofford, Box 29, New York 17, N. Y., warehouse and office. Plans deposit $20. Look & Morrison, Box 46, Pensacola, archts.

Fla., Fort Lauderdale—SCHOOL—BA 9/12—Bd. P. Instruction, Broward Co., 1320 S.W. 4 St., Stirling Elementary School. Kenneth J. Spry, 2120 Tyler St., Hollywood, Fla., archt. D. E. Britt Assocs., 309 S.E. 9 Ave., Fort Lauderdale, Fla., structural engrs. Geo. L. Cadenhead, 302 S.E. 11 Ave., Fort Lauderdale, Fla., mech. engr.

La., Patterson—SCHOOL—BA 9/12—St. Mary Parish School Bd., Patterson, Patterson colored elementary and high school, Plans deposit $30. Lloyd J. Guillory, 116 Chestnut St., Morgan City, archt. CD 8/18.

▲† **Va., Langley**—CLEARING—BA 9/12—General Services Admin., General Services Bldg., 19th and F Sts., Wash. 24, D. C., clearing and grubbing 138 acres land Central Intelligence Agency Headquarters Bldg., Proj. No. 44122, Appr. No. 47-11x2300. CD 8/7/56.

Ala., Childersburg—HOUSING—BA 9/17—Childersburg Housing Authority, Childersburg, low rent housing, Incl. 20 bldgs., Ala. 122-1A & Ala 122-1B. Paul Hoffhert-Hugh Ellis, 220 S. 8th St., Gadsden, Ala., archts. CD 2/7.

Ga., Newnan—HOUSING—BA 9/19—Newnan Housing Auth., 2 Hanna St., GA 95-3 and 95-4, low-rent housing, incl. 27 dwelling buildings. Plans deposit $50. Cuttino & Assocs., 1001 Mortgage Guaranty Bldg., Atlanta, archts. CD 2/20/56.

BUILDINGS—SLC

Fla., West Palm Beach—BUILDINGS—Air Products, Inc., 949 Hamilton St., Allentown, Pa., soon lets contract 1 story 42x98 ft., 1 story 31x65 ft., 1 story 44x78 ft., 1 story, 40x121 ft., 2 story 27x31 ft., concrete block and 1 story, 46x378 ft. and 1 story 30x62 ft., steel frame buildings and foundations, water, sewers and electric, 24 mi. northwest of here (Jupiter). Extended date. Rader & Assocs., 111 N.E. 2 Ave., Miami, engrs.-archts. CD 8/21.

(Continued on page 110)

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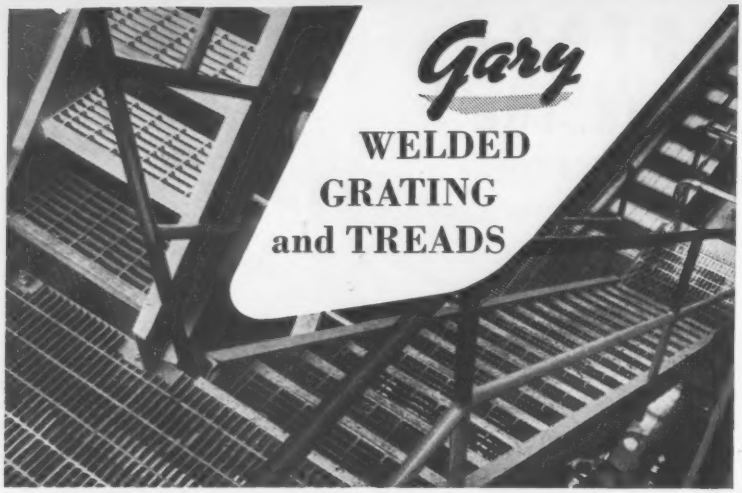

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Relatively new design of light-weight steel sheet piling being driven by a McKiernan-Terry No. 3 Double-Acting Pile Hammer on a West Coast sewer project. This type of piling saves costs in many ways when used for trench protection and similar services, and the McKiernan-Terry Hammer is sized precisely for this kind of pile-driving. McKiernan-Terry Corporation, 80A Richards Ave., Dover, N. J.

(Continued from page 108)

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Commonwealth of Va., Dpt. Hys., Central Hy. Office Bldg., Rm. 400, 1221 E. Broad St., Richmond, Bids opened 8/21,

Va.—**Sam Finley, Inc.**, 1615 Cleveland Ave. S. W., Roanoke, Va., LB **$148,577**, reconstr. and 20-ft. hard surf., incl. bridge 3.57 mi. Rte. 642 from Proctor Street at Suffolk to Rte. 337 at Wilroy, SP 1361-17-18, FP S-987(1), Nansemond Co.; LB **$120,190**, soil aggreg. base, b. conc. top 4.97 mi. beginning Int. Rte. 170 (near Hickory) and ending Int. Rte. 618, SP 1364-28-30, FP S-SG-770(2), Norfolk Co.;

Va.—**Thompson-Arthur Paving Co., Inc.**, 300 Benbow Rd., Greensboro, N. C., LB **$96,458**, soil aggreg. base 3.37 mi. beginning Int. Rte. 671 and ending east Int. Rte. 665. SP 1373-20, FP S-810(2), Prince Edward Co.;

Va.—**Moyer Constr. Co.**, Staunton, Va., LB **$114,114**, soil aggreg. base 5.03 mi. beginning Int. Rte. 670 near Syria and ending west Int. Rte. 231. SP 600; 643, FP S-991(1), Madison Co.;

Va.—**Virginia Asphalt Paving Co., Inc.**, 437 McClanahan S. W., Roanoke, Va., LB **$76,939**, grading, draining and hard surf. 2.38 mi. Rte. 640 from US 250 at Hightown, south, SP S 1345-08, FP S 352(2), Highland Co.;

Va.—**Robertson-Fowler, Inc.**, Buchanan, Va., LB **$423,403**, soil aggreg. pen. top. 3.52 mi. from north corporate limits Leesburg north to Limestone Branch. SP 1853-09-10, FP F-026-1(1), Loudoun Co.;

Va.—**Talbott-Marks Co., Inc.**, Clarksville, Va., LB **$262,906**, grade, drain 2.36 mi. beginning west WCL Winchester and ending west WCL Winchester, Contr. 1 SP 50, FP F014-1(10), Frederick Co.;

Va.—**Clyde R. Royals**, Hampton, Va., LB **$271,637**, b. conc. 2.35 mi. beginning south Int. 17 (Brays Fork) and ending south Tappahannock, Rte. 360, SP 2028-23-2328-08 FP F-012-2(4); 030-1(5), Essex Co.;

Va.—**Malpass Constr. Co., Inc.**, 2650 E. Ind. River Rd., Norfolk, Va., LB **$1,083,023**, c. conc. 0.96 mi. divided four-lane hy., an overpass A and D RR; twin bridges over Meherrin River, and an underpass and connection at Brunswick Ave. FAI 401 (US 301), Greensville Co.;

Va.—**Nello L. Teer Co., Inc.**, Trust Bldg., Durham, N. C., LB **$2,251,086**, c. conc. 3.7 mi. and 2 bridges beginning at NCL Hampton and ending north Int. Rte. 258, FAI, SP 8227-70-71-72, FP I-122-1(7), Contr. 1, City of Hampton;

Va.—**Bennie Snyder**, White Sulphur Springs, W. Va., LB **$250,286**, grading, draining and hard surf. 2.68 mi. between Rte. 616 and Rte. 700 east of Hamlin, Russell Co.; LB **$371,827**, reconstr. 1.68 mi. Rte. 85 between Bluefield and West Virginia line, Tazewell Co.;

Va.—**R. H. Rose**, Towana Rd., Richmond, Va. LB **$139,874**, soil aggreg. and 111 ft. bride beginning 0.07 mi. south Prince Edward CL and ending Int. Rte. 636, Rte. 609, SP 1314-10; 1373-18-19, FP S-848 (2), Buckingham and Prince Edward Counties;

Va.—**Pendleton Constr. Corp.**, Wytheville, Va. LB **$166,215**, reconstr. and hard surf. 4.09 mi. Rte. 619 from Rte. 94 near Porters Cross Roads to Rte. 636 at Austinville, SP 1398-15-18; FP S-478 (4), Wythe Co.;

Va.—**Virginia Stone and Constr. Corp.**, Roanoke, Va LB **$127,381**, grading, draining and hard surf 4.49 mi. from Rte. 764 to Rte. 750, closing gap between US 221 near Dugspur and Rte. 100 south of Sylvatus. SP 1317-13, FP S-717 (2), Carroll Co.;

Va.—**E. V. Williams Co. Inc.**, 1269 E. Pr. Ann Rd., Norfolk, Va. and W. H. Scott, Inc., Franklin, Va. LB **$509,005**. c. conc. 1.07 mi. and overpass of Chesapeake and Ohio RR to connect US 60 and 168 at jct. US 17 near Morrison, Rte. 312, SP 7394-70-71-72, FP U-122-1 (2), City of Warwick. CD 8/8.

VIRGINIA—Commonwealth of Va., Dpt. Hys., 1221 E. Broad St., Richmond, Bids opened 8/21,

Va.—**Pendleton Constr. Corp.**, Wytheville, Va., LB **$73,654**, 87 ft. bridge and 0.47 mi. approach road Rte. 601 at Walker Creek east, Bland Co.;

Va.—**Faulconer Constr. Co., Inc.**, Natl. Bank Bldg., Charlottesville, Va., LB **$75,000**, 115 ft. bridge and 0.56 mi. of approach road Rte. 601 at Ivy Creek north of Charlottesville, Albemarle Co.;

Va.—**McDowall & Wood, Inc.**, 1308 Main W., Salem, Va., LB **$120,659**, 192 ft. bridge and 0.56 mi. approach road Rte. 613 at Middle River north of Staunton, Augusta Co. CD 8/8, under Streets and Roads.

Rubin Constr. Co., 15 Street, West Palm Beach, Fla., CA **$297,000**. site clearing, filling, grading, and road constr. for Palm Beach County Industrial District, 1,800 acre industrial park, WEST PALM BEACH, FLA. A. E. and R. F. Raidle, Inc., 232 S. County Rd., Palm Beach, Fla. Simmerson, Bell & Mack, 304 Main St., Jacksonville, Fla., engrs.

Nichols Contrg. Co., Inc., 2718-19th St., Homewood, Birmingham, Zone 9, Ala. CA **$135,008**; sanitary sewer sys. addn. VESTAVIA HILLS, ALA. City of Vestavia Hills City Hall, Birmingham, Zone 9, Ala. Walter Schoel, Title Guarantee Bldg., Birmingham, engr. Bids June 19, awarded July 26. CD 5/23.

▲ **LOUISIANA**—State Dpt. Hys., R. B. Richardson, dir., Hy. Office Bldg., Baton Rouge,

La.—**W. R. Aldrich & Co.**, Box 1751, Baton Rouge, La., CA **$2,622,864**, c. conc. 5.363 mi. Pearl River, Mississippi State Line Hy., SP No. 740-00-09, FA Proj. No. 1-530 (1), St. Tammany Parish;

La.—**T. L. James & Co., Inc.**, Ruston, La., CA **$852,316**, wid'n. c. conc. pavt., bit. hot mix surf. 16.086 mi.

(Continued on page 112)

This unique GMC 12-wheeler hauls 9 legal yards within 60,000 GVW

Warner of Philadelphia—one of America's top three ready-mix outfits—uses GMC's to swing 2½ extra yards every trip

IT TAKES plenty of truck backbone to haul 18 tons of concrete. But Warner Company took advantage of GMC's enormous reserve strength—had an extra front axle installed locally for the desired weight distribution—and they have mixers that swing 9-yard loads!

That means each of their GMC FWX660's is hauling, in *two* trips, almost as much payload as their previous trucks delivered in *three*. Multiply that by the 26 GMC's in Warner's fleet, and you'll see how delivery costs take a nose dive.

"GMC gave us the ideal weight setup in an easy-to-maneuver c.o.e.," says Equipment Superintendent Charles Ponti. "What's more, these trucks have the ruggedness—and then some—to handle their big loads under the toughest conditions we ever meet."

The first of these GMC FWX660's was put to work in early 1956. How successful were they? Warner ordered 6 more eight months later. Then 3 more. Seven others were delivered this past March.

No mystery about the reason: "*On every job where we can use their full 9-yard capacity, we are making substantial savings*," says Ponti.

Here, then, is another example of the way GMC's—of every size and type—are cutting costs for America's top construction firms. No matter what you haul—or where you haul it—check *all* the GMC advantages with your GMC dealer!

GMC TRUCK & COACH—*A General Motors Division*

(Continued from page 110)

Dovington-Lacombe Hy. S.R. 190. SP No. 13-11-04 and 13-12-15, FAP No. F-76, St. Tammany Parish;

La.—**Coastal Contractors, Inc.**, Box 911, Baton Rouge, La., CA $592,155, wid'n. existing pavt., bit. hot mix surf. 11.999 mi. Monroe-Colombia Hy., Rte. SP No. 15-08-06, FAP No. F-14, Quachita Parish;

La.—**J. B. Talley & Co.**, St. Martinville, La., CA $505,-835, c. conc. 4 mi. Upper Coteau Hy., Rte. LA 660, SP No. 855-07-04, Terrebonne Parish. Bids June 26. Grand total $4,573,170. CD 7/18, under LB.

† **J. B. Talley & Co.**, St. Martinsville, La., LB $175,-580 (4 bidders) levee constr., incl. 145,000 cu. yd. levee and 62 acres seeding in St. Mary Parish, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Aug. 16. CD 7/24.

Barber Bros., 2636 Dougherty Dr., Baton Rouge, La. LB $149,000, est. $73,000, soil cement base, and asph. conc. surf. on 7.7 mi. of streets, BAKER, LA. Town, Mayor Henry Smith, Town Hall, Baker, La. Bids Aug. 14. CD 8/9.

Wilks, Dake & Steed, Gladewater Hy., Tyler, Tex., LB $295,844 (8 bidders) Proj. No. 1, sanitary sewerage collection sys.; LB $95,650 (7 bidders) Proj. No. 2, sanitary sewerage treatment plant, FARMERSVILLE, LA. Town, Raymond L. Turnage, mayor, Town Hall, Farmersville, La. Bids Aug. 13. CD 7/17.

▲ **J. A. Jones Constr. Co.**, Box 1818, Shreveport, La., CA $5,595,000, 2 story and 3rd floor portion, concrete, steel terminal bldg., and West Pier at Moisant International Airport, Kenner, NEW ORLEANS, LA. City, Civic Center, New Orleans, La. Bids Aug. 17, awarded Aug. 22. CD 8/22, under LB.

Town, Town Hall, Logansport, La., rejected bids Aug. 16, water treatment plant, water mains, water services etc., LOGANSPORT, LA. LB $239,752. CD 8/12.

L. L. Stevens, 525 W. 6th St., Newport, Ky. LB $135,489, underground steam lines, Eastern State College, RICHMOND, KY., Commonwealth of Ky., Div. of Purch., Frankfort, Ky. Bids Aug. 15. CD 8/1.

BUILDINGS—LB & CA

Eugene Simpson & Bros., 300 Montgomery St., Alexandria, Va., LB $992,475 (11 bidders) INDUSTRIAL FACILITIES at D. C. Reformatory, LORTON, VA. D. C. Govt., Director Bldgs. & Grounds, 499 Pa. Ave. N.W., Wash., D. C. Bids Aug. 22. CD 8/1.

C. G. Shockley Constr. Co., Box 5186, Columbia, S. C., CA $731,462, 74 unit HOUSING for Negroes, Barhamville Rd., COLUMBIA, S. C. Columbia Housing Authority, John A. Chase, dir., City Hall, Columbia, S. C. Bids Aug. 7, awarded Aug. 19. CD 8/14, under LB.

▲ **Wilbur L. Koretz, Inc.**, 2800 E. Oakland Park Blvd., Fort Lauderdale, Fla. CA $1,200,000. 42-unit Co-operative APARTMENT, FORT LAUDERDALE, FLA. Ocean East Inc., 1530 S. Ocean Blvd., Fort Lauderdale, Fla. Morton T. Ironmonger, 1261 E. Los Olas Blvd., Fort Lauderdale, archt.

Bradford Builders, Inc., 1101 Lincoln Rd., Miami Beach, Fla., LB $404,848 Base Bid, West Twin Lakes ELEMENTARY SCHOOL, Ludlum Rd. and 59 Pl., MIAMI, FLA. Bd. P. Instruction Dade Co., 275 N.W. 2 St., Miami, Fla. Bids Aug. 21. CD 8/7.

The Greyhound Corp., 141 W. Jackson St., Chicago, Ill., cancelled bids to have been opened Aug. 14, SHOP, 3 St. S. and 7 Ave., ST. PETERSBURG, FLA. Carl N. Atkinson, 205 3 St. S., St. Petersburg, archt. CD 8/15.

State Bd. Educ., Baton Rouge, La., rejected bids July 18, HOUSING UNITS for married students, HAMMOND, LA. LB Est. $808,864. CD 7/25, under LB.

George A. Caldwell, Box 477, Baton Rouge, La., CA $668,145, MEN'S DORMITORY at Southeastern La. College, HAMMOND, LA. State Bd. Educ., Capitol Bldg., Baton Rouge, La. Bids July 18, awarded Aug. 17. CD 7/25, under LB.

Charles Carter & Co., P. O. Box 1279, Baton Rouge, La. CA $803,000, high SCHOOL and AUDITORIUM GYMNASIUM, ZACHARY, LA. East Baton Rough Parish School Bd., Baton Rouge, La. Bids Aug. 1. CD 8/13, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Wis., Wauwatosa—BA 9/12—City, City Hall, 15,574 ft. of 8- to 15-in. v. c. pipe sanitary sewers. Francis Kirchuck, city engr.

BUILDINGS—BA

Wis., Elm Grove—INFIRMARY—BA 9/10—Notre Dame Sisters, 2 story, bsmnt., 218x302 ft. rein.-conc., brick, and steel infirmary addn. Plans deposit $50. R. J. Strass Inc., 225 E. Michigan St., Milwaukee, engr., Herbst, Jacoby & Herbst, 1249 N. Franklin Pl., Milwaukee, archts.

Wis., Kenosha—GARAGE—BA 9/10—City, City Hall, 1 and 2 story 70x300 conc., concrete blocks municipal garage. Plans deposit $25. L. Monberg & Assocs., 815 59 St., archts.

Mich., Grand Rapids—NURSES RESIDENCE, etc.—BA 9/11—Butterworth Hospital, Robert H. Bennett, chn. Bldg. Comn., nurses residence and training bldg., Butterworth Hospital, Michigan Ave. Roger Allen & Assoc., 1126 McKay Tower, Grand Rapids, Zone 2, archts.

Wis., Madison—SCHOOL—BA 9/12—Bd. Educ., 351 W. Wilson St., 2 story, 180x270 ft. Sherman Junior High School addn. Plans deposit $50. Siberz, Purcell & Cuthbert, 1920 Monroe St., engr.-archts.

Wis., Waukesha—COURT HOUSE—BA 9/13—Waukesha Co., court house. Extended date. Foss & Jansma Inc., 11109 W. Blue Mound Rd., Wauwatosa 13, archt. CD 7/12.

▲ **Ill., Elmhurst**—HIGH SHOOL—BA 9/25—York Comm. High School Dist. 88, 355 W. St. Charles St., 1, 2 and 3 story high school, bit. paving and conc. walks, Roosevelt and Ardmore Aves., $7,900,-000. Perkins & Will, 309 W. Jackson Blvd., Chicago, archts. CD 11/8/56.

HEAVY CONSTRUCTION—LB & CA

INDIANA—State Hy. Dpt., State House Annex, Indianapolis,

Spears-Dehner, Inc., 1212 Clark St., Fort Wayne, CA $512,136, paving, grading, drainage south to Fountain City etc. south Wayne-Randolph Co. line, Contr. R-4116 F-402 (10), Wayne Co. CD 7/19, under LB.

INDIANA—State Hy. Dpt., State House Annex, Indianapolis. Bids opened 8/20,

Ind.—G. H. Allen, Vincennes, Ind. LB $278,409. rein.-con. girder and cont. steel beam (5 spans) over Patoka River 3 mi. north SR 64 incl. 0.005 mi. approach grading, rein.-con. pavt. Contr. No. 4218 F-65-(15) 41-D-3448, Gibson Co.;

Ind.—MaMahan Constr. Co., Rochester, Ind. LB $122,-979. rein.-con. girder and cont. steel beam (5 spans) over Tippecanoe River 0.6 mi. west jct. SR 25 and SR 331, incl. 0.07 mi. approach grading and comp. aggreg. base with bit. coated blended aggreg. surf., Contr. No. 4219 S-807 (4) 110-J-4126, Marshall and Fulton Counties. CD 8/6.

ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield. Bids opened 8/22,

Ill.—Triangle Constr. Co., 480 N. Evergreen St., Kankakee, Ill. LB $79,255. (1 bidder), 3.63 mi. bit. surf. treatment on FAS 1330 east of Donovan, Iroquois Co.;

Ill.—Cephas Williams, Streator, Ill. LB $100,847. (3 bidders), b. conc. resurf. 5.62 mi. Ill. 116 between Pontiac and U. S. 51. Livingston and Woodford Counties;

Ill.—Dale Denny Coast Co., Anna, Ill. LB $82,627. (2 bidders), 0.72 mi. channel change and I-beam bridge on Ill. 146 W Jonesboro, Union Co. CD 8/15.

▲ **Paschen Contrs., Inc.**, 2739 Elston Ave., Chicago 47, Ill., CA $1,852,000, 3 bridges, Congress Expressway, B & O R. R., CT railroad and C and A R. R., CHICAGO, ILL., Cook Co., County Bldg., Chicago, Ill. Bids June 25. CD 7/30, under LB.

▲ **U. S. Steel Corp.**, American Bridge Div., 208 S. LaSalle St., Chicago, Ill. LB $2,971,000. NW Superhighway, fabricating and erecting structural steel grade separation carrying C and NW R.R., W. Hubbard St. and N. Green St. over superhighway, CHICAGO,

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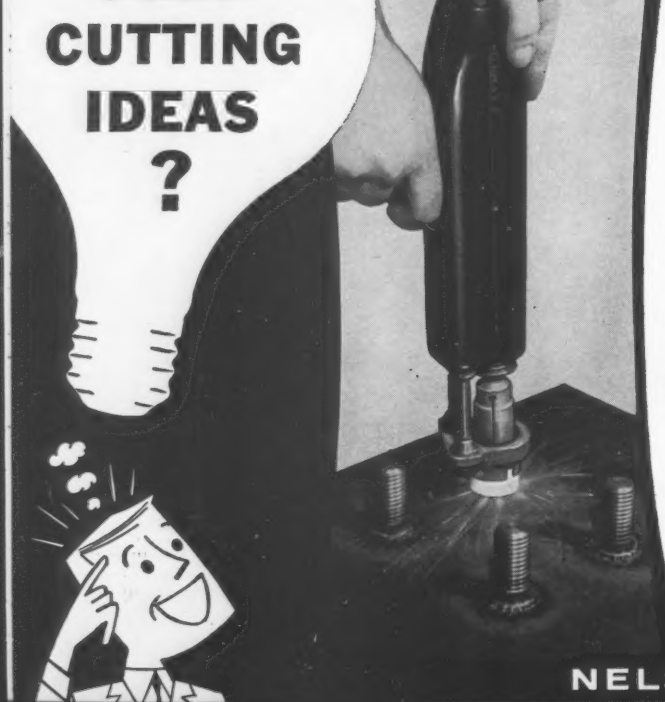

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ILL. City, City Hall, Chicago, Ill. Bids Aug. 19. CD 8/2.

Normoyle & Berg Co., 2223 11th St., Rock Island, Ill. LB **$241,813**, Contr. No. 1, LB **$370,304**, Contr. 2, sewerage sys. imprvs. GENESEO, ILL. City, City Hall, Geneseo, Ill. Bids Aug. 13.

Normoyle & Berg Constr. Co., 2223 11th St., Rock Island, Ill., CA **$507,483**, sanitary sewers, PEORIA, ILL. Greater Peoria Sanitary Sewer Dist., 2322 S. Darst St., Peoria, Ill. Bids July 16. CD 7/26, under LB.

▲ **WISCONSIN**—State Hy. Comn., E. L. Roettiger, state Hy. engr., State Office Bldg., Madison, Bids opened 8/20.

Wis.—**Alexander Constr. Co., Inc.**, 4641 Hiawatha Ave., So., Minneapolis 6, Minn., LB **$432,388** (17 bidders), grade, sub-base course 3.229 mi. Int. Rte. 103, The Hudson-Eau Claire (Woodville-East Co. line section) Road, Proj. I 103-4 (5), Contr. 6, St. Croix Co.; LB **$476,800** (12 bidders), grade, sub-base and structures, C-55-17 and C-55-18, 4.129 mi. Int. Rte. 103, The Hudson-Eau Claire (Woodville-East Co. line section) Road. Proj. I 103-4 (5), Contr. 5, St. Croix Co.;

Wis.—**The White Constr. Co.**, 828 North Broadway, Milwaukee 2, Wis., LB **$125,340** (7 bidders), b. conc. 5.405 mi. The Wilmot-U. S. H. 45 Road, C. T. Hy. "C", Proj. S. 0471 (5), Contr. 1, Kenosha Co. CD 8/1/57.

▲ **WISCONSIN**—State Hy. Comn., E. L. Roettiger, state hy. engr., State Office Bldg., Madison, Bids opened 8/20,

Wis.—**A. R. Coffeen Co.**, Decorah, Iowa, LB **$153,227** (8 bidders), structures B-55-12, B-55-13 and B-55-14 Int. Rte. 103, The Hudson-Eau Claire (Woodville East Co. line section) Road, Proj. I 103-4 (5), Contr. 1, St. Croix Co.; LB **$94,280** (17 bidders), structures B-55-17, B-55-18, and C-55-19, Int. Rte. 103, The Hudson-Eau Claire (Woodville-East Co. line section) Road, Proj. I 103-4 (5), Contr. 3, St. Croix Co.;

Wis.—**Wausau Constr. Co.**, 1308 West Street, Wausau, Wis., LB **$139,756** (13 bidders), structures B-55-22, B-55-23, B-55-19, and B-55-20, Int. Rte. 103, The Hudson-Eau Claire (Woodville East Co. line section) Road, Proj. I 103-4 (5) Contr. 4, St. Croix Co.;

Wis.—**R. C. Hinman**, Glenwood City, Wis., LB **$181,567** (9 bidders), structures, B-55-15, B-55-16 and B-55-21, Int. Rte. 103, The Hudson-Eau Claire (Woodville-East Co. line section) Road, Proj. I 103-4 (5), Contr. 2, St. Croix Co.;

Wis.—**L. G. Arnold, Inc.**, P. O. Box 228, Eau Claire, Wis., LB **$522,808** (5 bidders), grade and structures B-17-32 and B-17-33, Int. Rte. 103, 0.265 mi. The Hudson-Eau Claire (Red Cedar River Bridge) Road. Proj. I 103-4 (8), Contr. 1, Dunn Co. CD 8/1.

Schuster Constr. Co., 300 Elizabeth St., Green Bay, Wis., LB **$98,503**, paving streets, GREEN BAY, WIS., City, City Hall, Green Bay, Wis. Bids Aug. 5.

Pearson Constr. Co., Benton Harbor, Mich. LB **$908,251.** water treatment plant, raw water pumping station, ST. JOSEPH, MICH. City, Leland L. Hill, mgr., St. Joseph, Mich. Bids Aug. 12. CD 7/23.

BUILDINGS—LB & CA

Joseph Graue Constr. Co., 2067 Beechmont St., Cincinnati, O., Owner builds. **$525,000**; first section (25 units) 152 HOUSING units on Paddisen Rd., CINCINNATI, O., James Wald & Assoc., 2565 Galbraith St., Cincinnati, O., engrs.

▲ **Hunkin-Conkey Constr.**, 1740 E. 12 St., Cleveland 14, O. CA **$3,000,000.** Lutheran HOSPITAL addn., CLEVELAND, O. Lutheran Hospital, 2609 Franklin Ave., Cleveland 13, O. Awarded Aug. 13. CD 8/13, under LB.

▲ **Massillon Bd. Educ.**, Massillon, O., rejected bids opened Aug. 10, Washington High SCHOOL ADDN. MASSILLON, O. LB est. **$1,465,000.** CD 8/21, under LB.

▲ **Carl M. Geupel Constr. Co.**, 1919 N. Meridian St., Indianapolis, Ind. CA Est. **$5,000,000.** FACTORY, BEARING PLANT, on 70 acre site west of INDIANAPOLIS, IND. Link-Belt Co., 519 Holmes St., Indianapolis, Ind. CD 4/4/56.

Steilberg Constr. Co., P. O. Box 13, Shively, Ky., LB **$729,000** (10 bidders), county HOSPITAL, PAOLI, IND. Orange Co. Bd. Trustees, Mineral Springs Bldg., Paoli, Ind. Bids Aug. 20. CD 7/26.

▲ **Klug & Smith Co.**, 4425 W. Mitchell St., Milwaukee, Wis. CA Est. **$1,500,000-$1,750,000.** general contract East addns. to HOSPITAL, MILWAUKEE, WIS. Milwaukee Hospital, 2200 W. Kilbourn Ave., Milwaukee, Wis. Bids Aug. 6. CD 7/30.

▲ **Smith & Andrews Constr. Co.**, 21110 Greenfield St., Oak Park, Mich., LB **$1,270,014**, Ford, Merrill Ave., Webster, Edison, Longfellow, Hoover, United Oaks Wanda and Martin Rd. SCHOOLS ADDNS., HAZEL PARK, MICH., City, School Dist., Ernest Barr, secy., 22750 Highland Ave., Hazel Park, Mich. Bids Aug. 19. CD 8/2.

▲ **Miller-Davis Co.**, 1029 Portage St., Kalamazoo, Mich., CA Est. **$6,000,000**, PULP MILL, KALAMAZOO, MICH. Allied Paper Corp., Arnold Marament, chn., 1543 Alfred St., Detroit, Mich. Roy W. Emery, Ltd., 130a 22 St., Toronto, Ont., archt. CD 1/23.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Minn., Duluth**—REFUELING APRON—BA On Or About 9/10—U. S. Eng., 1217 Post Office and Custom House, St. Paul, replacement of refueling apron, Duluth Air Force Base, ENG-12-018-58-5.

† **Tex., Dallas**—RUNWAY—BA 9/12—Officer In Charge Constr., 8th Naval Dist., Bldg. 16, U. S. Naval Station, New Orleans (Algiers) La., repair and leveling Runway 17-35, U. S. Naval Air Station, NBy 13140, Spec. No. 13140/57. CD 7/5/50.

† **South Dakota**—BA 9/19—Bureau Reclamation, Dpt. Interior, Huron, Stage 02 addns. to Granite Falls Sub-station Transmission Division, Missouri River Basin Proj., DC 4946. CD 5/25/44.

† **Tex., Kingsville**—SWITCHES—BA 9/23—Officer in Charge of Constr. Administration Bldg. No. 1, Naval Air Station, Corpus Christie, modify automatic transfer switches at Naval Auxiliary Air Station, NBy 13123, Spec. 13123/57.

† **S. D., Rapid City**—BUILDING—BA 10/1— Procurement Office, Ellsworth, Air Force Base, Rapid City, modify Bldg. No. 7806, OPS Mission TNG at Ellsworth Air Force Base, No. 39-601-58-6, extended date. CD 8/5.

BUILDINGS—BA

Ark., Fayetteville—DINING HALL—BA 9/12—University of Arkansas, T. C. Carlson, secy-treas., Fayettesville, 2 story, 50,000 sq. ft. dining hall. $400,000. Ginocchio, Cromwell & Assocs., 416 Center St., Little Rock, archts. CD 4/16.

▲ **Iowa, Des Moines**—SCHOOL—BA 9/17—Bd. Educ., 629 3rd Ave., Louis C. Kurtz Junior High School. $1,565,000. Wetherell & Harrison, 506 Shops Bldg., archts.

Mo., Warrensburg—DORMITORIES—BA 9/19—Central Missouri State College, Bd. regents, Warrensburg, 4 story 207x45 ft. woman's dormitory and 100x50 ft. men's dormitory. $860,000. Plans deposit $25. Everitt & Keleti, 4550 Main St., Kansas City, Mo., archts. CD 7/24.

Tex., Wichita Falls—HOUSING—BA 9/24—Wichita Falls Housing Authority, c/o Chester T. Olson, exec. dir., 501 Webster St., 30 brick veneer, concrete tile, stucco duplexes. $575,000. Plans deposit $50. Haririder, Clark & Jones, 1004 T & P Bldg., Fort Worth, archts. CD 8/12, under LB.

▲ **Colo., Denver**—OFFICE BLDG.—BA 9/27—State of Colo., State Office Bldg., 1422 Grant St., Denver, 7 story, 2 bsmnts., 160,000 sq. ft., steel frame office bldg. $3,500,000. Plans deposit $100. G. Meredith Musick, 1000 Patterson Bldg., Denver, Temple Buell, 730 14 St., Denver, archts. and Eugene D. Sternber, 2364 East 3rd Ave., Denver, Colo., engrs. CD 12/5.

HEAVY CONSTRUCTION—LB & CA

IOWA—State Hy. Comn., John G. Butter, ch. engr., Ames,

Iowa—**F. A. Moser**, Farmersburg, Iowa, LB **$150,965,** (Group 1), 27 rein.-con. arch, box and pipe culverts also twin pretensioned prestressed concrete beam bridges at various locations on relocation of US 20, FN 305, Dubuque Co.; LB **$74,572**, 16 rein.-con. arch box and pipe culverts at various locations on

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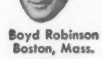
EASTERN STATES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Boston, Mass.

Paul Butterfield
New York, N. Y.

George James
New York, N. Y.

Joseph Curry
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J. E. Stone
Philadelphia, Pa.

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George Kramer
Cleveland, Ohio

G. A. Medsker
Cleveland, Ohio

R. A. Wrigley
Detroit, Mich.

Harold Bartley
Milwaukee, Wis.

Donald Niebler
Milwaukee, Wis.

Gerald Halseth
Minneapolis, Minn.

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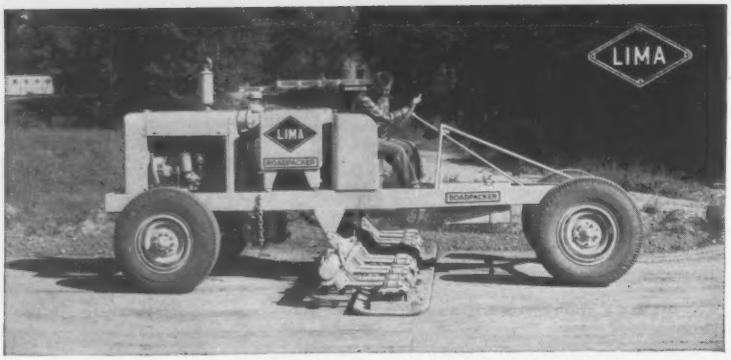

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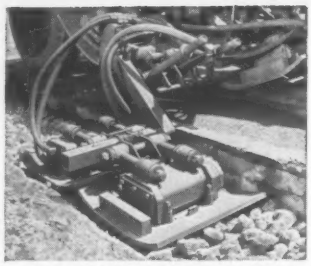

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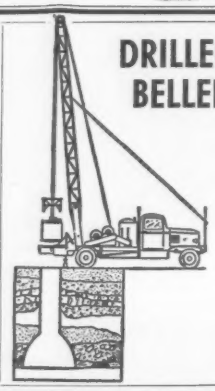

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relocation of US 34 from present US 34, FN-3 Henry and Jefferson Counties;

Iowa—**Brogan Constr. Co.**, 321 Locust St., Des Moines, Iowa, LB **$99,217**, replace deck girder bridge with conc. slab bridge at various locations on US 1 also wid'n. conc. slab bridge; also replace pony truss bridge with spur pretensioned prestressed concrete bridge; also replace pony truss bridge with continuous concrete slab bridge, FN-307W, Palo Alto Co. LB **$282,945**, 9 rein.-con. box culverts and one concrete headwall field drain outlet at various locations on Iowa relocation of US 6 from Cedar Co. line near W. cor. Sec. 19-79-1E, east and southeasterly to point near center, Sec. 35-79-2E, I-01-8 (2), Scott Co.;

Iowa—**J. C. Costigan**, Elkader, Iowa, LB **$92,170** (Group 2), 27 rein.-con. arch, box and pipe culverts also twin pretensioned prestressed concrete beam bridges at various locations on relocation of US 20 FN 305, Dubuque Co.;

Iowa—**A. Olson Constr. Co.**, 1225 Commercial St., Waterloo, Iowa, LB **$120,730**, high truss span, I-beam and continuous I-beam approach spans on Farm to Market Road at south fork Maquoketa River crossing, FM-362, Jackson Co.;

Iowa—**Godberson-Smith Constr. Co.**, Ida Grove, Iowa, LB **$140,192**, high truss bridge with two pony truss approaches on Farm to Market Road at Little Sioux River crossing, SN-1077, Monona Co. CD 8/7.

▲ **IOWA**—State Hy. Comn., John G. Butter, ch. engr., Ames, Bids opened 8/20,

Iowa—**Hallett Constr. Co.**, Crosby, Minn., LB **$265,940**, c. conc. 1.849 mi. Iowa 28 from near W¾ cor. north and east to just west of Fleur Drive, P-199(2), Polk Co.; LB **$169,484**, c. conc. pavt. wid'n. 11.806 mi. U.S. 18 from O'Brien Co. line east to U.S. 71, FN-789, Clay Co.;

Iowa—**Booth & Olson, Inc.**, 529 Ins. Exchange Bldg., Sioux City, Iowa, LB **$124,763**, c. conc. pav't. wid'n. 8.761 mi. U.S. 20 from Iowa 328 east to SE cor. FN-517W, Ida and Sac Counties; LB **$190,000**, c. conc. pav't. wid'n. 13.062 mi. U.S. 18 out of Emmetsburg east, south and west to Kossuth Co. line FN-307W, Palo Alto Co.;

Iowa—**Quad City Constr. Co.**, 644-25th Ave., Rock Island, Ill., LB **$184,233**, c. conc. wid'n., b. conc. resurf. 0.615 mi. U.S. 61 from jct. with U.S. 151 U-UG-17(7), Dubuque Co.;

Iowa—**Morgan Constr. Co.**, Fort Dodge, Iowa, LB **$374,365**, b. conc. resurf. 16.354 mi. Iowa 163 from Marion Co. line northwesterly to Polk Co. line, P-77W, Polk and Jasper Counties;

Iowa—**W. Hodgman & Sons**, Fairmont, Minn., LB **$120,189**, b. conc. resurf. 6.263 mi. U.S. 69 also north to Iowa 221, FN-72, Story Co.;

Iowa—**Lowe Constr. Co.**, P. O. Box 58, Marion, Iowa, LB **$381,395**, grading 7.05 mi. relocation US 20 east and northeasterly to present U.S. 20, FN-305, Dubuque Co.;

Iowa—**Reilly Bros. Constr. Co.**, P. O. Box 151, Ossian, Iowa, LB **$82,012**, grading 4.943 mi. Iowa 295 out of Westgate east to Iowa 150, FN-973, Fayette Co.;

Iowa—**Central Constr. Co.**, 108 East Boston St., Indianola, Iowa, LB **$120,494**, grading 4.288 mi. relocation U.S. 34 to present U.S. 34, FN-3, Henry and Jefferson Counties;

Iowa—**R. B. Burch, Inc.**, P. O. Box 789, Cedar Rapids, Iowa, LB **$282,177**, grading 10.917 mi. relocation U.S. 6 from Cedar Co. line to point near center Sec., I-01-8 (2), Scott Co.;

Iowa—**Green Constr. Co.**, 321 Locust St., Des Moines, Iowa, LB **$121,885**, grading 3.596 mi. relocation U.S. 20 from near center sec. to Moville, FN-2, Woodbury Co. CD 8/7.

† **Massman Constr. Co.**, 3917 Broadway Kansas City, Mo. LB **$179,762**, est. $164,948, stone bank protection Mississippi River mile 137.5 mi. above Ohio River in Ste. Genevieve Co. MISSOURI. U. S. Eng., 420 Locust St., St. Louis 2, Mo. Bids Aug. 20. CD 7/17.

† **U. S. Eng.**, P.O. Box 867, Little Rock, Ark., cancelled bids to have been opened Aug. 27, relocation of Yocum Creek Rd., Table Rock Reservoir, White River Watershed, White River, ENG-03-050-58-12, ARKANSAS. CD 8/7.

† **W. A. Lynn Constr. Co.**, 1022 Trust Bldg., Lincoln, Neb., LB **$403,340**, est. $448,245, repair of dike and revetment from Atchison to Leavenworth Counties, CIVENG-23-028-57-134, KANSAS. U. S. Eng., Federal Office Bldg., Kansas City, Mo. Bids July 30. CD 8/1.

▲ **Winn-Senter Co.**, 901 W. 43rd St., Kansas City, Kan. CA **$1,207,581**, FREIGHT HOUSE, KANSAS CITY, KAN., Union Pacific R.R. Co., 1416 Dodge St., Omaha, Neb. L. A. Daly Co., Insurance Bldg., Omaha, Neb., archt.-engr.;
Natkin & Co., 1924 Oak St., Kansas City, Mo. CA **$210,646**, mechanical work, freight house, (Kansas City, Kan.);
Evans Electric Co., 734 Armstrong, Kansas City, Mo. CA **$128,500**, electrical work freight house, (Kansas City, Kan.)

▲ **OKLAHOMA**—State Hy. Dpt., Capitol 5, Oklahoma City,

Okla.—**Haskell Lemmon**, 3014 N. W. 49th, Oklahoma City 7, Okla. CA **$114,592**, est. $114,692, stab. aggreg. base, b. conc. surf. 5.611 mi. Hy. 9 east of Hughes Co. line, Rayford, McIntosh Co.; CA **$108,403**, est. $108,500, stab. aggreg. base, b. conc. 5.316 mi. Hy. 9 east of Hughes Co. line, Rayford, McIntosh Co.;

Okla.—**Peter Kiewit Sons Co.**, S. E. Station, Wichita, Kan. CA **$455,616**, est. $456,160, soil cement base, b. conc. surf. 2.764 mi. U. S. 66 in Sayre, Beckham Co.;

(Continued on page 116)

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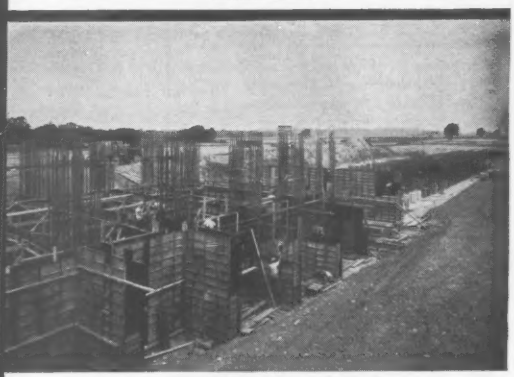

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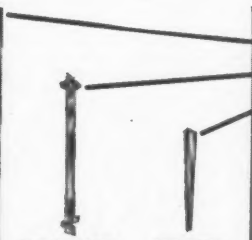

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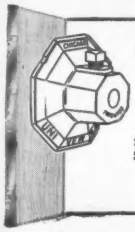

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(Continued from page 114)

Okla.—S. E. Evans, Box 903, Fort Smith, Okla. CA **$144,029,** est. $134,414, grading, draining 5.784 mi. Hy. 63 east of Hartshorne, Pittsburg Co.;

Okla.—Smith Bros., Noble, Okla. CA **$215,533,** est. $215,542, stab. agggreg. base, rock asph. surf. 7.247 mi. Hy. 70-E thru Albany, Bryan Co.;

Okla.—Amis Constr. Co., 1647 Exchange, Oklahoma City 8, Okla. CA **$1,511,943,** est. $1,414,377, grading, draining 2.794 mi. U. S. 77 by-pass in Oklahoma City, Oklahoma Co.;

Okla.—John Erts, Inc., 2201 Classen Blvd., Oklahoma City 6, Okla. CA **$202,439,** est. $202,474, stab. aggreg. base, b. conc. 7.177 mi. Hy. 5, east of Coweta, Wagoner Co.;

Okla.—Steinberg-Boyd Co., 113 S. 1st, Broken Arrow, Okla. CA **$249,636,** est. $249,866, stab. aggreg. base, rock asph. surf. 5.251 mi. Hy. 48 through Clarita, Coal Co.;

Okla.—Fischer Constr. Co., Box 801, Norman, Okla. CA **$182,753,** est. $201,164, concrete pav. 0.547 mi. US 70 in Ardmore, Carter Co.;

Okla.—Clark Constr. Co., Box 409, Woodward, Okla. CA **$236,082,** est. $309,442, grading, draining 7.562 mi. Hy. 50 near Mooreland, Woodward Co.;

Okla.—W. E. Steelman, 2800 N. E. 4th, Oklahoma City 4, Okla. CA **$84,913,** est. $89,026, stab. aggreg. base and double bit. surf. 6.228 mi. county road near Geary, Blaine Co.;

Okla.—Cohenour Constr. Co., Gilbert Blvd., Ardmore, Okla. CA **$113,835,** est. $113,317, grading, draining 2.77 mi. U. S. 70 truck Rte. in Ardmore, Carter Co.;

Okla.—Frix & Busch, 1200 S. Cherokee, Muskogee, Okla. CA **$213,439,** est. 213,525, stab. aggreg. base with double bit. surf. 5.812 mi. Hy. 2 north of Wilburton to Haskell Co. line, Hatimer Co. Grand total $3,833,218. Bids Aug. 20. CD 7/23.

▲ **Manhattan Constr. Co.,** Manhattan Bldg., Muskogee, Okla., CA Est. **$2,000,000;** jet aircraft overhaul shop, TULSA, OKLA. American Air Lines Co., 5075 S. Boston St., Tulsa, Okla., Gene Taylor, c/o owner. Awarded Aug. 13. CD 5/1/53.

▲ **TEXAS**—State Hy. Comn., Austin, Bids opened 8/20,

Tex.—F & C Engineering Co., P.O. Box 2426, Houston, Tex., LB **$146,245,** grading, structures, bl. base, b. conc. 2.588 mi. Hy. US 90, Proj. I. 305(7), Orange Co.;

Tex.—Farnsworth & Chambers Co., Inc., P.O. Box 74, Houston, Tex., LB **$210,868,** grading, structures, c. conc. 0.153 mi. Hy. US 69, Proj. U 53(20), Jefferson Co.;

Tex.—McMillin-Burkett Constr. Co., P.O. Box 1161, Texarkana, Tex., LB **$124,277,** grading, structures, base and surf. 7.656 mi. Hy. FM 1861, Proj. S 2202 (1), Henderson and Van Zandt Counties;

Tex.—Cooper & Woodruff, Inc., 204 Mays Bldg., Amarillo, Tex., LB **$413,702,** flex. base and b. conc. 10.537 mi. Hy. US 287 F. Proj. 438 (30), Donley Co.;

Tex.—West Texas Constr., Inc., P.O. Box 5067, Lubbock, Tex., LB **$105,079,** grading, structures, base and surf. 8.106 mi. Hy. FM 1063, Proj. S 1458 (2), Crosby Co.;

Tex.—Ross C. Watkins, P.O. Box 647, Laredo, Tex., LB **$275,107,** flex. base, two course surf. treat. 9.416 mi. Hy. US 83, Proj. F. 577 (21), Starr Co.;

Tex.—C. H. Livingston, P.O. Box 1012, LaPorte, Tex., LB **$283,579,** grading, structures, base and surf. 7.566 mi. Hy. FM 2354, Proj. S 2210 (1), Chambers Co.;

Tex.—Dew Constr. Co., Inc., P.O. Box 1247, Tyler, Tex., LB **$82,882,** grading, structures, base and surf. 4.09 mi. Hy. FM 959, Proj. S 2169 (1), Panola Co.;

Tex.—J. Carroll Weaver, Contractor, P.O. Box 996, Sinton, Tex., LB **$151,218,** grading, structures, base and surf. 6.599 mi. Hy. FM 2046, Proj. R. 371-5-1, San Patricio Co.;

Tex.—M. E. Ruby and **D. B. Denney Jr.,** P.O. Box 96, San Marcos, Tex., LB **$581,418,** flex. base and asph. pavt. 8.928 mi. Hy. US 81, Proj. F. 793 (1), Dimmit Co.;

Tex.—Flenniken Constr. Co., P.O. Box 634, Shreveport, La., LB **$699,027,** roadbed treat., c. conc. pavt., flex. base shoulders 7.9 mi. Hy. US 82, Proj. F. 315 (10), Red River Co. CD 7/26.

▲ **TEXAS**—State Hy. Dpt., Austin, Bids opened 8/21,

Tex.—C. Hunter Strain & W. L. Barnes, P. O. Drawer 1631, San Angelo, Tex., LB **$1,077,363** base, two course surf. treat. and b. conc. 30.479 mi. Hy. US 67, Proj. F. 656 (1), Reagan Co.;

Tex.—J. O. Boswell, 311 Paris Ave., Lubbock, Tex., LB **$115,936,** grading, structures, base and surf. 8.636 mi. Hy. FM 2255, Proj. RV 2256-1-1 & C. 2256-1-2, Lubbock Co.;

Tex.—Standard Constr. Co., P. O. Box 3246, El Paso, Tex., LB **$311,915,** wid'n. sub-grade, flex. base, structures, hot mix b. conc. 4.363 mi. Hy. US 80, Proj. C. 2-1-28, El Paso Co.;

Tex.—Cage Bros., 6959 San Pedro, San Antonio, Tex., LB **$407,003,** flex. base and b. conc. 11.8 mi. Hy. SH 350, Proj. S. 323 (6), Howard Co.;

Tex.—R. W. McKinney, P. O. Box 190, Nacogdoches, Tex., LB **$340,802,** grading, structures, base, surf. 9.151 mi. Hy. F 1753, Proj. S. 1908 (1), Grayson Co.;

Tex.—R. C. Buckner, P. O. Box 609, Jacksonville, Tex., LB **$215,954,** flex. base, one course surf. treat. 5.993 mi. Hy. SH 21, Proj. F. 144 (4), Cherokee Co. CD 8/8.

▲ **TEXAS**—State Hy. Comn., Austin, Bids opened 8/21,

Tex.—Cooper & Woodruff, Inc., and Austin Contg. Co., 204 Mays Bldg., Amarillo, Tex., LB **$450,030,** foundation course, hot mix b. conc. 9.979 mi. Hy. SH 199. Proj. F. 454 (5), Baylor and Ancher Counties;

Tex.—Henry L. Stafford, P. O. Box 1047, Lubbock, Tex., LB **$204,488,** grading, structures, base and surf. 23.692 mi. Hy. FM 1312 & 403, Proj. S. 1460 (2), Gaines and Terry Counties;

Tex.—F. C. Herring, Kurten, Tex., LB **$127,846,** grading, structures, base and surf. 5.4 mi. Hy. FM 542, Proj. S. 558 (2), Leon Co.;

Tex.—Gilvin-Terrill, Inc., P. O. Box 2268, Amarillo, Tex., LB **$418,921,** flex. base and b. conc. 12.341 mi. Hy. US 287, Proj. F. 438 (29), Donley Co.;

Tex.—T. R. Vardeman & Son and A. D. Muckleray, P. O. Box 485, Nacogdoches, Tex., LB **$380,451,** flex. base, b. conc. pavt. and overpass structures 3.756 mi. Hy. US 59, Proj. F 201 (12) & FG 201 (13), Nacogdoches Co.;

Tex.—McMillin-Burkett Constr. Co., P. O. Box 1161, Texarkana, Tex., LB **$167,587,** grading, structures, base and surf. 6.955 mi. Hy. FM 785 and 995. Proj. S.2168 (1) and S. 2052 (2), Cass Co.;

Tex.—John T. Leslie, Bailey, Tex., LB **$203,570,** grading, structures, base and surf. 11.199 mi. Hy. FM 1816 & 1806. Proj. S. 2208 (1) & S. 1640 (2), Montague Co.;

Tex.—E. & M. Bohuskey Constr. Co., P. O. Box 1226, Harlingen, Tex., LB **$119,273,** flex. base and b. conc. 1.493 mi. Hy. SH 336, Proj. C. 621-1-13, Hidalgo Co.;

Tex.—Allan Keller Co., P. O. Box 393, Fredericksburg, Tex., LB **$539,908,** flex. base and two course surf. treat. 8.065 mi. Hy. US 290, Proj. F. 177 (3), Hays Co.;

Tex.—W. Paul Carlisle, P. O. Box 12116, Dallas, Tex., LB **$508,449,** grading and structures 2.072 mi. Hy. US 77, Proj. I. 230 (6), Denton Co.;

Tex.—Tom Tellepsen, P. O. Box 2536, Houston, Tex., LB **$541,322,** flex. base and two course surf. treat. 9.502 mi. Hy. FM 1960. Proj. S. 1868 (5), Harris Co.;

Tex.—Gilsen & Latson Constr. Co., 5931 Burnet Rd., Austin, Tex., LB **$156,486,** grading, structures, base and surf. 4.31 mi. Hy. FM 969. Proj. C 1186-1-7, Travis Co. CD 7/26.

TEXAS—State Hy. Comn., Austin, Bids opened 8/21,

Fred Hall & Son, P. O. Box 488, Valley Mills, Tex., LB **$195,086,** Dutchman River Bridge 0.222 mi. Hy. St. 70 & FM 684, Proj. ER 22(1) & ER 23(1), Motley Co. CD 8/7.

Pittsburgh Des Moines Steel Co., Praetorian Bldg., Dallas, Tex. LB **$213,910;** elevated water storage tank at Mission, LB **$209,190;** water storage tank on Austin Hy., LB **$205,900;** elevated water storage tank in North Ridge, SAN ANTONIO, TEX. City Water Bd., 106 W. Market St., San Antonio, Tex. Bids Aug. 8. CD 6/28/56.

Chicago Bridge & Iron Wks., 5625 Clinton Dr., Houston, Tex. LB **$170,650.** concrete ground water storage tank, 34th St. (San Antonio, Tex.).

▲† **Robert E. McKee, General Contractor, Inc.,** 221 Washington Ave., Santa Fe, N. M., CA **$5,103,700.** Cadet Social Center and Theater, IFB-05-613-057-43, Air Force Academy, COLORADO SPRINGS, COLO. Dpt. Air Force, P. O. Box 1670, Colorado Springs, Colo. Bids Aug. 6. CD 8/9, under LB.

Bd. Water Comrs., City and County Bldg., Denver, Colo., rejected bids Aug. 9, Roberts Tunnel housing project, incl. temporary buildings for residences, office, etc., Dillon and Grant Sts., DENVER, COLO.

BUILDINGS—LB & CA

▲ **Swenson Constr. Co.,** 3305 Terrace St., Kansas City, Mo., CA **$1,005,330,** 150 bed, 4 story, HOSPITAL, 66th St. and Rockhill Rd., KANSAS CITY, MO. Baptist Memorial Hospital Comn., 6601 Rockhill, Kansas City, Mo. Turnbull-Novak, 9 E. 45th St., Kansas City, Mo., archts. Bids Aug. 15.

▲ **Manhattan Constr. Co.,** 1808 Clarsen St., Oklahoma City 6, Okla., CA **$1,000,000.** 6 story OFFICE Addn., 3 and Harvey Sts., OKLAHOMA CITY, OKLA. Oklahoma Gas & Electric Co., 321 N. Harvey St., Oklahoma City, Okla. Awarded Aug. 14. CD 11/13

Mullins-Built Homes, c/o St. Andrew's Subdivision, or 2515 W. 10th St., Dallas, Tex., Owner builds. **$362,-500.** 19 DWELLINGS, DALLAS, TEX.

Chicago Bridge & Iron Co., 5625 Clinton Dr., Houston, Tex., Owner Builds. **$450,000,** INDUSTRIAL PLANT, HOUSTON, TEX. CD 4/4.

Stanford & Puckett, 3301 W. Ohio St., Midland, Tex., Owner builds. **$351,000.** 24 DWELLINGS, Bauman St., MIDLAND, TEX. CD 8/8.

John M. Schaefer, Builder, 311 Travis Bldg., San Antonio, Tex. Owner Builds. **$358,000,** 49 low priced DWELLINGS; **$351,000,** 47 low priced DWELLINGS, SAN ANTONIO, TEX. CD 8/9.

Haggerty Messmer Constr. Co., Bozeman, Mont., CA **$846,000,** general contract 4 story CLASSROOM and OFFICE BLDG. at Montana State College, BOZEMAN, MONT. State Bd. Educ., Helena, Mont. Bids Aug. 19. CD 8/23, under LB.

▲ **Mead & Mount,** 1560 Denver Club Bldg., Denver, Colo. LB **$870,000.** general contract, 3 story, bsmnt., 106,000 sq. ft., CHEMISTRY ADDN., BOULDER, COLO. University of Colorado, Campus, Boulder, Colo. Bids Aug. 13. CD 7/30.

Grabb Plumbing, 1048 12 St., Denver, Colo. IB **$389,723.** mechanical work for chemistry bldg. addn., (Boulder, Colo.).

FAR WEST

BUILDINGS—BA

▲ **Calif., Los Angeles**—SCHOOL—BA 9/18—Bd. Educ., 1425 S. San Pedro St., 133,000 sq. ft., frame, stucco, Porter High School, Granada Hills. $2,000,000. Roland H. Crawford, 246½ S. Doheny Dr., Beverly Hills, archt. CD 4/8/55.

HEAVY CONSTRUCTION—LB & CA

† **IDAHO**—Bureau P. Rds., Dpt. Commerce, 408 N. 10 St., Boise,
Brown's Industries, Inc., McCall, Idaho. LB **$191,607,** (7 bidders), grading, constr. 85 ft. rein.-con. bridge on 3.292 mi. Warren Wagon Rd. in Payette National Forest, Proj. 21-B6, Unit 1, Valley Co. Bids Aug. 20. CD 8/9.

† **IDAHO**—Bureau P. Rds., Dpt. Commerce, 408 N. 10 St., Boise,
Duffy Reed Constr. Co., Twin Falls. CA **$434,951,** asphalt surf. 9.241 mi. Yellowstone Park Hy. in Targhee National Forest, Proj. 34-A19, Fremont Co. C. R Salmen, div. engr. Bids Aug. 16.

† **Peabody Engrg. Corp.**, 582 5th Ave., New York, N. Y. LB **$189,500;** MJL 500-808 furnishing barometric condensers, OGDEN, UTAH. Air Force-Marqurdt Aircraft Co., 16555 Saticoy St., Van Nuys, Calif. Bids Aug. 8. CD 4/30, under Public Buildings.

▲† **Mittry Constr. Co.**, 2960 Marsh St., Los Angeles 39, Calif., CA **$10,484,544;** painted rock reservoir dam and appurtenances at Gila River Basin, Gila Bend, ENG-04-353-57-41, ARIZONA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 21. CD 7/8, under LB.

ARIZONA—State Hy. Dpt., 17th Ave. and Jackson St., Phoenix,
T.M.K. Constr. Co., 2815 S. 40th St., Phoenix, Ariz., CA **$551,845;** select material, bit. stab. base and armor coat 11.6 mi. beginning at Navajo Apache County line about 21 mi. northeast of Holbrook and extending for approx. 11.6 mi. over new alignment U.S. Rte. 66 (Holbrook-Lupton Hy.) Proj. IN 83 (26) Apache Co. Bids July 9, awarded July 22. CD 7/17, under LB.

† **Peter Kiewit Sons Co.**, 1024 Omaha Nat'l Bank Bldg., Omaha, Neb., LB **$209,755,** est. $201,543. Sch. 3, enlargement of Potholes East canal, Station 299/40 to 376/32, Columbia Basin Project, Spec. DC 4928, WASHINGTON, Bureau Reclamation, Dpt. Interior, Ephrata, Wash. Bids Aug. 15. CD 7/29.
A. R. Sime, Kennewick, Wash., LB **$302,967.** Sch. 6, Station 770/00 to 1157/02 (Washington).

Wisco-West Coast, 1121 W. Hanford St., Seattle, Wash., CA **$269,372** (11 bidders), central filter plant for water sys., involving 12 filters each 10 ft. diam. and 45 ft. long, etc., ANACORTES, WASH. City, City Hall, Anacortes, Wash. Bids Aug. 19. CD 7/17.

American Pile Driving Co., Pier 2, Everett, Wash., CA **$280,758** (4 bidders), 2 lane pile and frame trestle, Norton Ave.-Alverson Blvd. overpass, EVERETT, WASH. City, City Hall, Everett, Wash. Bids Aug. 20. CD 7/31.

▲† **Earl H. Parker, Inc.**, 12th and F St., Marysville, Calif. CA **$2,256,834,** levee constr. and stone protection, left bank Sacramento River, Tisdale Weir to Sutter Bypass, Sutter Co. ENG-57-100. CALIFORNIA. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids July 25. CD 7/29, under LB.

Fredrickson & Watson & Ransome Co., 873 81st Ave., Oakland, Calif., CA **$745,556;** Orinda Hy. near Orinda, MARTINEZ, CALIF. Contra Costa Co., Court House, Martinez, Calif. CD 7/31, under LB.

Taylor & Hoover Inc., P. O. Box 325 E. Pasadena, Calif., CA **$87,843** (5 bidders) Palos Verdes Slide Area pumping plant and force main, PALOS VERDES, CALIF. Palos Verdes Properties, 2020 Beverly Blvd., Los Angeles, Calif. Bids Aug. 13, awarded Aug. 14.

Dorfman Constr. Co., 124 N. La Brea Ave., Los Angeles, Calif., LB **$348,846** (5 bidders) sewers, Kenora Dr. and manholes, appurtenances, Area No. 54, SAN DIEGO, CALIF. Spring Valley Sanitation Dist., Civic Center, San Diego, Calif. Bids Aug. 13.

▲ **Charles L. Harney Constr. Co.**, 575 Berry St., San Francisco, Calif. CA **$10,000,000,** stadium in Bayview Hills for New York Giants, near Hunters Point, incl. parking area for 10,000 cars, SAN FRANCISCO, CALIF. City and San Francisco Co. Recreation and Park Comn., Fell and Stanyon Sts., San Francisco, Calif. Charles W. Griffiths, City Hall, San Francisco, Calif., archt. CD 11/5/54.

Ukropina-Polich-Kral, P. O. Box 105, San Gabriel, Calif. LB **$417,784,** (11 bidders) Los Alamitos Flood Control Channel, San Gabriel River to Cerriots Ave., Proj. C-1, SANTA ANA, CALIF. Orange County Flood Control Dist., Courthouse, Santa Ana, Calif. Bids Aug. 20. CD 7/31;
Webb & White, 512 S. San Vicente Blvd., Los Angeles, Calif. LB **$305,254** (11 bidders) Los Alamitos Flood Control Channel Pumping Station and force main, (Santa Ana, Calif.)

BUILDINGS—LB & CA

J. A. McNeil Co., Inc., 3115 W. Mission Rd., Alhambra, Calif. CA **$755,346,** 5 story, bsmnt., rein.-con. RESIDENCE HALL, BRENTWOOD, CALIF. Mount St. Mary's College, 12001 Chalon Rd., Brentwood, Calif Bids Apr. 12, awarded Aug. 19. CD 3/25.

† **Vinnell Cox, Inc.**, 1145 Westminster Ave., Alhambra, Calif., CA **$977,612;** TRAINING FACILITY, Camp Cooke, ENG-04-353-57-114 LOMPOC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 27. CD 7/15, under LB.

▲ **F. E. Young Constr. Co.**, 2141 Main St., San Diego, Calif. CA **$3,070,870,** 4 story, penthouse, rein.-con. ENGINEERING PHYSICAL SCIENCE BLDG. No. 2, at U. C. L. A., LOS ANGELES, CALIF. U. C. L. A., 405 Hilgarde St., Los Angeles, Calif Bids Aug. 1, awarded Aug. 15. CD 8/8, under LB.

(Continued on page 120)

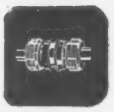
ROCKFORD

MORLIFE® Spring Loaded CLUTCHES Provide

100% MORE GRIP

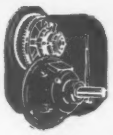
Small Spring Loaded

Heavy Duty Spring Loaded

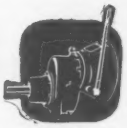


Oil or Dry Multiple Disc

Heavy Duty Over Center



Power Take-Offs



Speed Reducers

ROCKFORD Spring-Loaded CLUTCHES, equipped with MORLIFE clutch plates, provide 100% more torque grip than previous type clutches of equal size. This permits the use of smaller diameter clutches. Easier operation is accomplished by reducing the required engaging pressure. 50% better heat disposal avoids down-time caused by burned or warped plates. Numerous field records prove that MORLIFE clutches operate 400% longer without plate replacement or adjustment. Let these NEW type clutches help improve the operation of *your* heavy-duty machines.

BW **SEND FOR THIS HANDY BULLETIN**
Gives dimensions, capacity tables and complete specifications. Suggests typical applications.

ROCKFORD Clutch Division BORG-WARNER
313 Catherine St., Rockford, Ill., U.S.A.
Export Sales Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.

CLUTCHES

ENGINEERED - GROUTING - SERVICE

Do you have a difficult problem which pressure grouting might solve? If so, contact us.

We appreciate the exacting, and excel in the unusual.

ENGINEERS - CONTRACTORS
Box 1111 Station C Evansville, Ind.

TEST BORINGS for
• COAL
• MINERALS
• DAMS & BRIDGES
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We test all the earth

PENNSYLVANIA Drilling CO.
DRILLING CONTRACTORS AND MFRS.
PITTSBURGH 20, PA.

When It Comes to Your Reproduction Equipment...

It May Be LATER Than You Think!

If more than a few years have gone by since you acquired your reproduction equipment, chances are it's costing you unnecessary time, man hours, and money. It may well turn out to be a bottleneck in your efforts to meet growing production boom demands.

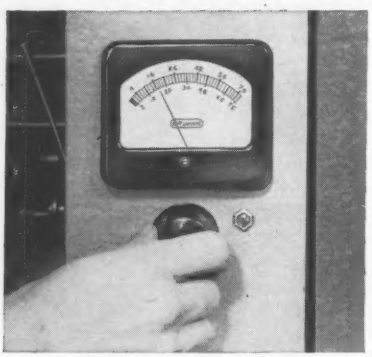
Compare your equipment with the modern Bruning machines shown here. You should be getting the advantages offered by such advanced models as the new "575"... greater mechanical speeds, faster return of originals, synchronized exposure and development, automatic separation of originals from exposed prints, automatic stacking, front or rear print delivery. You should be benefiting by the problem-free installation and operation of Copyflex —no exhaust venting, no plumbing or auxiliary equipment, no installation other than an electrical connection.

If you're not getting these important advantages, then every day you delay getting modern Copyflex is costing you time and money. Act now by mailing the coupon. You'll be glad you did!

Copyflex Gives You All These Modern Reproduction Advantages!

Greater Convenience of Operation!

Modern Copyflex gives printing widths up to 54" to simplify feeding of large tracings, facilitate multiple feedings. Such features as extra-large delivery trays, automatic separation, and front-or-rear delivery further speed operator's work.



Faster Mechanical Speeds!

New Copyflex models introduced within the past two years offer sharply increased speeds—up to 30% faster than before. Synchronized exposure and development assure top quality prints, one knob control simplifies operation.

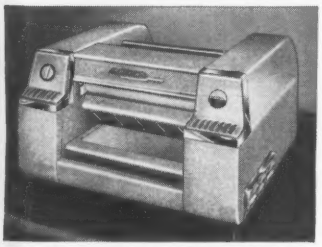
Problem-Free Installation and Operation!

Clean, quiet, odorless... Copyflex requires no vents or plumbing. Precision-engineered design, including use of selenium rectifiers instead of troublesome vacuum tubes, assures trouble-free operation.

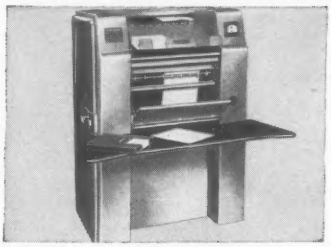
Just Out! *New, 75 f.p.m. Copyflex Model 575!*

Now when you need it! Here is the fastest, easiest-to-use Copyflex machine ever built!

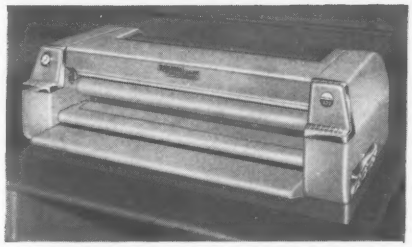
Here is the whiteprinter that has everything you could want in a reproduction machine—a super-fast mechanical speed of up to 75 feet per minute, a fast-printing exposure lamp which can be operated at either 7,500 or 5,000 watts with the flick of a switch, a full 46-inch printing width—*plus* many operator conveniences. The powerful, two-stage lamp provides the proper latitude for assuring the production of sharp, high contrast prints of all types of translucent originals at the fastest possible rate. Operator conveniences include: one-knob speed control, with perfect, automatic synchronization of print exposure and development; improved, air-foil type automatic separation of exposed prints from originals; automatic stacking of tracings and prints; front or rear delivery; and a lamp shield control which facilitates the reproduction of extra-fast printing originals. The new Model 575 will pay for itself many times over in your drafting room by bringing you increased savings in time and man hours.



Model 110. When you need prints of such smaller size originals as specification sheets and check prints, this handy table-top machine turns them out in a jiffy without tying up your big machine. It has a printing width of 11". Makes 8½ x 11 prints for less than 1¢ each for materials. Operates on 115 volt A.C.



Model 250. It takes less than a square yard of floor space, yet offers a printing width of 18½" and a fast mechanical speed of 30 f.p.m. Automatic separation and stacking, one-knob control, and an extra-large feed board simplify and speed operator's work. Operates on 220 volt A.C.



Model 300. It's only 46" wide, yet offers a full 30" printing width! This remarkable low-priced table-top machine brings "inside" reproduction within the means of the smallest department or firm, makes an ideal "extra" machine for large companies. Operates on 115 volt A.C.

BRUNING *Copyflex*

Best Process! Best Machines!
Best Selection of Materials!

Offices in 38 Cities of the U.S. and Canada

CHARLES BRUNING COMPANY, INC., CHICAGO
In Canada: Charles Bruning Co. (Canada) Ltd., 105 Church St., Toronto, Ont.

Charles Bruning Company, Inc., Dept. 93-M
4700 Montrose Ave., Chicago 41, Illinois

Please send me information on the Copyflex process and the following Copyflex machines: _____

Name _____ **Title** _____

Company _____

Address _____

City _____ **County** _____ **State** _____

(Continued from page 117)

▲ **Crown Constr. Co.,** 5059 W. Pico Blvd., Los Angeles, Calif. LB **$2,129,500** (8 bidders) 133,000 sq. ft., frame, stucco Henry Clay JUNIOR HIGH SCHOOL, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Welton Becket & Assoc., 5657 Wilshire Blvd., Los Angeles, Calif., archts. CD 4/8/55.

▲ **Cotton Constr. Co.,** 1735 McKinley St., National City, Calif. LB **$1,366,321** (6 bidders) 105,026 sq. ft., frame, stucco D. C. Collier JUNIOR HIGH SCHOOL, SAN DIEGO, CALIF. San Diego Unified School Dist., 4100 Normal St., San Diego, Calif. Bids Aug. 20. CD 8/9.

▲ **Hart & Hynding Co.,** 472 Tehama St., San Francisco, Calif. CA **$1,291,996,** Phase I, HOSPITAL conversion to University of California Hospital, SAN FRANCISCO, CALIF. University of California, Bd. Regents, (Extension Office) 540 Powell St., San Francisco, Calif. CD 8/15, under LB.

K. B. Wamsley, 1654 12th St., Santa Monica, Calif. CA **$500,000,** 50,000 sq. ft., 106 rooms concrete HOTEL, SANTA MONICA, CALIF. Ocean Ave. Corp., 1700 Ocean Ave., Santa Monica, Calif. John C. Lindsay, 827 Moraga Dr., Los Angeles, Calif., archt.

CANADA

BUILDINGS—SLC

Que., Montreal—WAREHOUSE—Reliable Transport Ltd., 5450 Fullum St., Montreal, soon lets contract 3 story bsmnt. 100x200 ft., concrete, rein.-con., block, brick warehouse adjacent to 5450 Fullum St. $350,000. Geo. Shubin, 4326 Sherbrooke St. W., Montreal, archt.

HEAVY CONSTRUCTION—LB & CA

MANITOBA—Manitoba Govt., Legislative Bldg., Winnipeg, Man.

E. Metcalf, Portage La Prairie, Man., CA **$219,310.** grading approx. 9.5 mi. Hy. 34 from Hy. No. 3, to Pembina River in Municipalities of Louise and Lorne. Awarded Aug. 19.

Harvey Constr. Co. Ltd., P. O. Box 216, Kingston, Ont. CA **$211,000.** grade separation, Canadian National Railways relocation at mileage 100.4 and Carman Rd., St. Lawrence Seaway, ONTARIO. Hydro-Electric Power Commission of Ontario, 620 University Ave., Toronto, Ont. Awarded Aug. 15.

Coles-Jeffrey Constr. Co. Ltd., 560 Exmouth St., Box 450, Sarnia, Ont., LB **$712,500.** railway bridge project incl. driving and filling with concrete of steel mono-tube piles, constr. rein.-con. footings abutments, wingwalls, piers and dock, etc. SARNIA, ONT. Canadian National Railways, W. E. Griffiths, ch. engr., Union Station, Toronto, Ont. Bids June 14. CD 6/6.

BUILDINGS—LB & CA

Doyle Constr. Co. Ltd., 4570 Main St., Vancouver, B. C., CA **$409,892.** 2 story, bsmnt., rein.-con. COLLEGE buildings incl. dormitories, lecture bldg. and administration section, VANCOUVER, B. C. St. Mark's College, Vancouver, B. C. Gardiner, Thornton & Gathe, 1520 Alberni St., Vancouver, B. C., archts. Awarded Aug. 10.

▲ **Angus Robertson Ltd.,** 57 Bloor St. W., Toronto, Ont., CA Est. **$2,000,000.** PLANT, 315-acre site, King Twp. AURORA, ONT. Sterling Drug Manufacturing Ltd., sub. Sterling Drug Inc., 1450 Broadway New York, N. Y., Proctor & Redfern, 11 Jordan St., Toronto, Ont., engrs. Awarded Aug. 19.

▲ **Georges Dube Cie., Ltee.,** Matane, Que., CA Est. **$1,000,000.** 2 story 132 x 250 ft. Classical COLLEGE building incl. school, chapel and gymnasium, MATANE, QUE. Les Rev. Cleres de St. Viateur, Dollard St., Rimouski, Que. Edgar Courchesne, 3057 Lacombe Ave., Montreal, Que., archt. Pierre M. D'Allemagne, 3180 Van Horne Ave., Montreal, Que., engr. Awarded Aug. 19. CD 5/7.

Star Home Constr. Ltd., 1965 Belanger St. E., Montreal, Que., Owner Builds, **$400,000.** 25 duplex HOUSING program, St. Donat, Drouages and Dyonet Sts. Longue Pointe, MONTREAL, QUE.

ALASKA

BUILDINGS—BA

† **Alaska, Middleton Island**—GENERATOR—BA 9/20—U. S. Eng., Anchorage, installing addnl. generator at power plant, Inv. 58-2.

HEAVY CONSTRUCTION—LB & CA

† **York Steel Co.,** Anchorage, Alaska, LB **$105,900** (4 bidders) apron, taxiway and access road at airport, SELDOVIA, ALASKA. Alaska Dpt. of Aviation, Anchorage, Alaska. Bids Aug. 16.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **M. W. Kellogg Co.,** 711 3 Ave., New York, N. Y., U.S.A., CA Est. **$8,200,000;** REFINERY ADDNS. URUGUAY,. Govt. of Uruguay, Montevideo, Uruguay.

AMERICANS ABROAD

BUILDINGS—LB & CA

▲ **International General Electric Co.,** 150 E. 42 St., New York, N. Y., CA Total est. **$9,300,000.** 175,000 kw TURBO GENERATOR UNIT for Sendai Steam Plant, Japan Tohoku Electric Power Co., Tokyo, Japan. Ebasco Services, 2 Rector St., New York, N. Y., U.S.A., engrs.

Chemical & Industrial International Ltd., Nassau, Bahamas, B.W.I., CA 150 ton per day nitric acid PLANT near JOHANNESBURG, SOUTH AFRICA. African Explosives & Chemical Industries, Ltd., (sub Imperial Chemical Industries) Johannesburg, South Africa. Chemical & Industrial Corp., 256 McCullough St., Cincinnati, O., U.S.A., engrs.

PROPOSED PROJECTS

WATER SUPPLY

Ga., Pooler—Town, Town Hall, water sys., **$114,000.**

Ky., Russell—City, City Hall, water supply sys., incl. wells, **$435,000.**

N. J., Morristown—Town, Town Hall, installing 16-in. watermains to serve Birch Hill section Whippany, **$100,000.** Clyde Potts Assocs., 30 Church St., New York, N. Y., consult. engrs.

▲ **O., Cleveland**—City, Dpt. P. Utilities, Emil J. Crown, dir., City Hall, Cleveland, Zone 14, division water filtration plant imprvs. **$1,540,000;** Fairmount water station, pumps **$1,560,000.** Constr. in 1959;
25 m.g. Warrensville Reservoir addn. **$2,975,000.**
Baldwin Water filtration plant addns., **$1,240,000.** Constr. in 1960. Havens & Emerson, 640 Leader Bldg., Cleveland, Zone 14, consult. engrs. CD 11/30/56.

O., West Farmington—Village, Village Hall, West Farmington, water sys. for Village, **$208,000.**

Okla., Fairview—City, City Hall, voted bonds, water works extens. **$195,000.** A. C. Pollard, 1521 N. Washington St., Oklahoma City, consult. engr.

▲ **Tex., Crosbyton**—White River Municipal Water Dist., Crosbyton voted bonds to supply water to towns of Post, Crosbyton, Spur and Ralls, **$4,000,000.** CD 3/2/56, under Towns Crosbyton, Spur and Post.

▲ **Wash., Everett**—City, City Hall, 52- and 48-in. supply lines from Lake Champlain to Rucker Hill reservoir involving 38,000 ft. 52- and 173,410 ft. 48-in. pipe, **$3,850,000.** J. W. Cunningham & Assocs., Portland Trust Bldg., Portland, Ore., Consult Engrs.

Que., Iberville—Ville de Iberville, Town Hall, water mains, etc. Goyette and Bessett Sts., **$105,000.**

SEWERS, WASTE DISPOSAL

Conn., Essex—Town, Town Hall, sewage treatment plant, Thatch Bed Island for Essex Square Area, **$354,000.** Bowe, Albertson & Assocs., 75 West St., New York, N. Y., consult. engrs.

Mich., Linden—Village, Village clk., Linden, sewage treatment plant, storm and sanitary sewers, **$200,000.** Francis Engr. Co., 301 Eddy Bldg., Saginaw, Mich., consult. engr.

N. M., Grants—Town, J. V. Horacek, clk., sewage treatment plant, collection lines, **$245,000.** Herkerhoff & Assocs., 302 8 St. N. W., Albuquerque, engrs. CD 7/25.

▲ **New York**—Boro, Pres. of Queens, Boro Hall, Kew Gardens, broad channel imprvs., sewers, Proj. PQ 168, **$2,400,000.** Constr. after 1960.

O., Chesapeake—Village, Village Hall, sewage treatment plant, **$175,000.**

▲ **O., Elyria**—City, City Hall, sewerage sys. modernization and expansion to provide city's needs for 40 years, **$1,500,000.** Havens & Emerson, 640 Leader Bldg., Cleveland, Zone 14, consult. engrs.

Tex., San Antonio—Quincy Lee Constr. Co., 211 Olmes Dr., West, sanitary sewers, **$75,000;** storm sewers **$78,500;** in "Skyline Park" subdivision where 347 dwellings are proposed.

BRIDGES

▲ **KENTUCKY and OHIO**—Kentucky State Dpt. Hys., Frankfort, Ky.,
Kenton Co.—bridge and approaches across Ohio River, between Covington, Ky. and Cincinnati, O., **$45,000,000.** Modjeski & Masters, P. O. Box 167, Harrisburg, Pa., consult. engrs. Constr. Spring 1958. CD 3/12/56.

N. J., Elizabeth—Bd. Chosen Freeholders, Union Co. Court House, bridge over Elizabeth River on Bridge St., **$200,000.** CD 4/2/56.

▲ **OHIO**—State Hy. Dpt., Columbus,
Cuyahoga Co.—Rocky River Bridge, Lakewood **$5,500,000.** Howard, Needles, Tammen & Bergendoff, 1805 Grand St., Kansas City, Mo., consult. engrs. Albert S. Porter, Standard Bldg., Cleveland 13, co. engr.

▲ **O., Cleveland**—City, Dpt. P. Wks., City Hall, Cleveland, Zone 14, widening, reconstr. Warner-Turney and E. 93 St. bridges from 2 to 3 lanes; new 2-lane bridge over Pa. R. R. 100 ft. long to carry new roadway over Mill Creek Valley connecting Ella Ave. with E. 93 St.; new 2-lane road south of RR tracks from Miles-Warner Intersection thru valley under New Ella Ave. exten. and again connect with Broadway east of E. 93 St., **$1,100,000.** Alden E. Stilson & Assocs., 245 N. High St., Columbus, consult. engrs. Jay R. Katz, city engr. CD 5/24/54.

Tex., Edna—Jackson Co., c/o Comm. Court, Court House, bridge repairing and improv. throughout county, **$115,000.**

STREETS AND ROADS

Ill., Chicago—Cook Co., bit. paving 2.17 mi. Ashland Ave., Sect. 057-3537, **$250,000;** bit. paving 4.22 mi. Kimball Ave., Sect. 053-3236, **$450,000;** bit. paving 0.73 mi. Nagle Ave., Sect. 041-1212. **$100,000.**

▲ **Nebraska**—State Dpt. Rds. & Irrigation, L. N. Ress, state engr., Lincoln,
Douglas Co.—Interstate Hy. 3, to connect downtown Omaha to Interstate Rte. 1 in South Omaha, **$10,000,000.** Henningson, Durham & Richardson, 2962 Harney St., Kirkham, Michael & Assoc., 508 S. 19th St., and L. A. Daly Co., Insurance Bldg., all of Omaha, consult. engrs.

Neb., Omaha—Douglas Co., Court House, county road imprv., widn. and paving 132 Nd. St. from Center to L St., **$600,000.** Wm. Green, co. engr. CD 12/12/56.

N. J., Paterson—City, City Hall, curbs and paving and streets extens. in First Ward, **$150,000.**

Tex., Edna—Jackson Co., c/o Comm. Court, Court House, roads repairing, reworking imprv. throughout county, **$110,000.**

Tex., Galena Park—Galena Park, c/o S. B. Bruce, Co. Aud., Harris Co., Court House, Houston, road work, grading, conc. paving, **$131,910.**

▲ **UTAH**—State Rd. Comn., State Capitol, Salt Lake City,
Cache Co.—new road 0.8 mi. U.S. 89 in Logan from 7th to 12th east. est. **$150,000.**
Carbon Co.—new road 2.5 mi. from Helper to Castle Gate. est. **$600,000.** Bids about Mar. 1, 1958.
Duschene Co.—6 mi. stretch of road from Vernal to Greendale Jct. est. **$50,000** or over. Bids in Oct.
Iron Co.—1.2 mi. Modena by-pass. est. **$45,000.**
Juab Co.—7.3 mi. of road from Millard Co. line north to Jericho. est. **$265,000.** Bids about Sept. 1.
Kane Co.—17 mi. of road from Buckskin Wash to Paria Creek. Est. **$2,250,000.** Bids about Sept. 15.
4 mi. of road starting north of Kanab to Mt. Carmel Jt. Est. **$300,000.** Bids about Sept. 15.
Millard Co.—2.7 mi. of road from Lynndale to Millard-Juab Co. line. Est. **$135,000.** Bids about Sept. 1.
Morgan Co.—4 mi. of road from Morgan toward Devil's Slide. Est. **$700,000.** Bids about Nov. 1.
Wasatch Co.—10.3 mi. of road from Keetley Jct. on U.S. 40 to U.S. 189 south of Heber. Est. **$1,050,000.** Bids about Sept. 1.
Weber Co.—2.1 mi. from Riverdale Jct. to Nyes Corner. Est. **$240,000.** Bids soon.

Que., Shawinigan Falls—City, City Hall, asph. paving streets and lanes, **$228,850.** E. A. Delisle, c/o owner, engr.

EARTHWORK, WATERWAYS

Iowa—Iowa Conservation Comm., E. 7th and Court St., Des Moines, spillway in lake at Mill Creek State Park, **$103,600.**

Mass., Northampton—City, Bd. Water Commrs., City Hall, Northampton, dam and reservoir, Whately, **$600,000.** Whitman & Howard Inc., 89 Broad St., Boston, Mass., consult. engr.

Wash., Vancouver—Clark Co., Courthouse, Vancouver, excavating of channels and ditches in Lacamas Creek watershed to lead excess water from farm lands, **$555,240.**

AIRPORTS

Mich., Ann Arbor—AIRPORT IMPRVS.—State, Dpt. of Aeronautics, Capital City Airport, Lansing, Mich., paving the northeast/southwest runway, at Municipal airport, South State St., **$138,000.** L. C. Andrews, Capital City, Airport, Lansing, Mich., chief engr. CD 2/13/46.

Okla., Ardmore—AIRPORT—Carter Co., Court House, county airport, **$600,000.** Rex Collins, McAlester, consult. engr.

▲ **Okla., Tulsa**—AIRPORT—Tulsa Airport Trust City, City Hall, buildings and runway imprvs. at Tulsa Airport. Over **$20,000,000.** W. R. Wooten, City Hall, city engr. CD 6/6.

LATIN AMERICA

Mexico, Mexico City—FACTORY—Mexico Industrial, Calz. Tlalpan, Mexico City, medicinal capsules factory **$800,000.**

Mexico, Mexico City—HOSPITAL—Sindicato Nacional de Trabajadores de Educacion, NaranJo, 174 Mexico City, 150-bed hospital, **$500,000.**

Mexico, Urepetiro—Sria. De Recursos Hidraulicos Mexico City, irrigation dam **$500,000.**

AMERICANS ABROAD

England, Fawley—PLANT—United Carbide Corp., 30 E. 42 St., New York 17, N. Y., U.S.A., petrochemical plant.

PUBLIC BUILDINGS

▲ **Ala., Decatur**—PLANT—City, City Hall & Morgan Co., Court House, Decatur, trailer mfg. plant **$2,000,000.** Fruehauf Trailer Co., Detroit, Mich., Lessee.

▲ **Calif., Auburn**—COLLEGE—Placer Union High School Dist., Sierra College Dist., c/o Supt., Auburn, bond election Oct. 22, expansion of Sierra College facilities, **$3,040,000.**

▲ **Calif., Bryte**—SCHOOL—Washington Unified School Dist., c/o Supt., Bryte, 2 new elementary schools,
(Continued on page 124)

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. . . and nothing specializes on <u>your</u> business like your business paper

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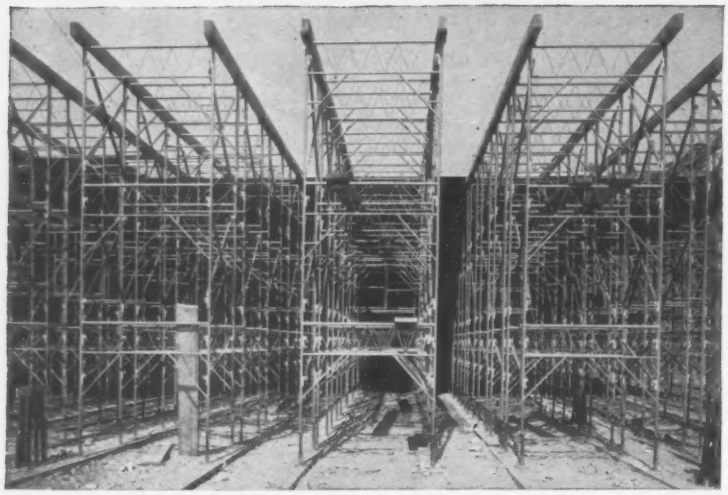
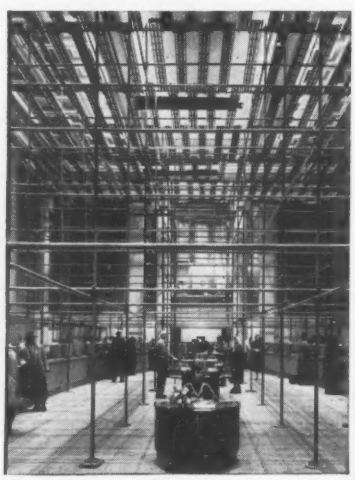


PREFAB SHORING FOR 12" SLAB—On a new 150' x 350', two-story building for Polaroid Corp., Waltham, Mass., general contractor Aberthaw Const. Co. needed support for a 12" slab. 4000 "Trouble Saver"® Shoring frames assembled in rows 3' and 3'6" apart easily provided for it. Job supt., Al Parsons, Jr.. says "We found these shoring frames, braces and components very easy to handle. We know that this type of shoring goes up faster, cuts costs and gives us maximum access to the base slab for other work".

DOUBLE-DUTY—Both the wheeling ramp and the mason's platform in back are made from prefab sections of "Trouble Saver Scaffolding. Varying-height frames and adjustable legs achieve the slope. Terminal Construction Co., Woodridge, N. J., general contractor.

GLASS SETTING RIG—A special rig, developed by Pittsburgh Plate Glass Co., with 700 "Trouble Saver" Scaffolding frames for working platforms, places 8' x 11' glass panes for Conn. Gen. Life Ins. Co. new building, Hartford. Eight rubber cups grip panes, overhead crane lifts to position. Turner Construction Co., general contractor.

ROLLING SCAFFOLD—Unusual set-up is made of two 5'-wide, counter-weighed "Trouble Saver" Scaffolding frames on casters. 12'-trusses are attached and ladder frames hang below. Sidewall brackets make two-level platforms. Scaffold rolls around roof perimeter of new Dallas Memorial Auditorium. R. P. Farnsworth & Co., gen. contr.



BANKING AS USUAL—Smoke damage due to fire made a wash and paint job necessary at the Marshall and Isley Bank, Milwaukee. Painting contractor, Carl L. Ruhland, used "TubeLox"® Scaffolding with Featherweight Stages to provide working platforms for ceiling and high wall work above and to permit banking traffic as usual below.

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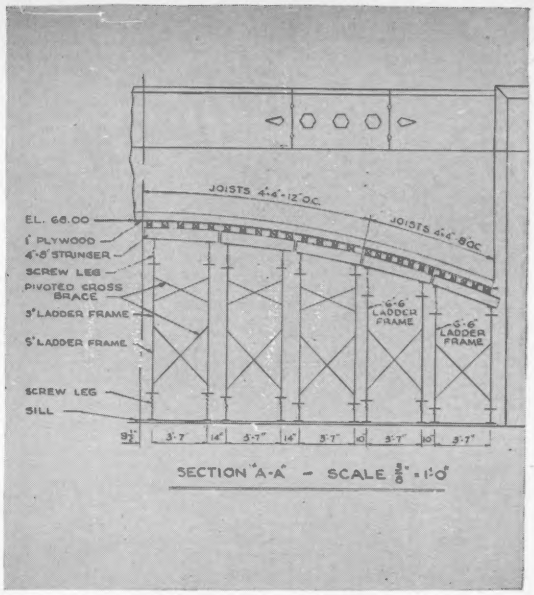
To help you with your scaffolding and concrete shoring methods, PS offers a complete nation-wide engineering service available to you locally. See the Yellow Pages in your 'phone directory for the nearest Patent Scaffolding office or representative that **sells** and **rents** "Gold Medal" Scaffolds.

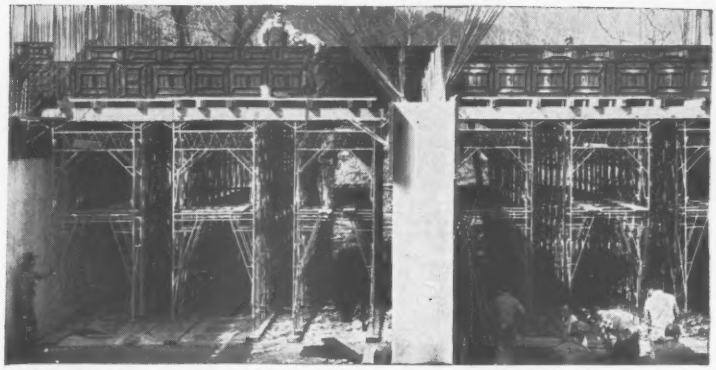
SIMPLE BRIDGE SHORING — Light-weight, easily-erected, prefab sections of "Trouble Saver" Steel Shoring eliminate heavy timbers (and cranes to handle them) for contractor, Matthew J. Reiser, Inc., on this job. 146 2'-wide ladder frames, 105 5'-wide frames and 196 14" U-heads provide ample support with minimum equipment for overpass on an exit road from the Wilbur Cross Parkway, Wethersfield, Conn.



PS Co. ENGINEERED LAYOUTS—Complete, accurate shoring layouts are a regular part of PS Co's engineering service available thru nation-wide offices or representatives that *sell* or *rent* "Gold Medal"® Scaffolds. See classified 'phone directory for your local source. Included are recommendations for joists, stringers, and every component to provide the safest, most efficient and economical shoring.

Shoring Methods . . . for Highway Construction by The Patent Scaffolding Co., Inc.

DUAL PURPOSE— Here, "Trouble Saver" Scaffolding speeds erection of formwork for above-ground pier shells and supports platform for vibrating machines and workers on a New York State Thruway overpass.



CUTS SHORING COSTS 25%—Mal-Bros Co., contractor on this street relocation bridge in Scotch Plains, N. J., formerly used only wood shoring methods. On this project "Trouble Saver" Steel Shoring was used. 272 frames, quickly assembled in 3' by 5' towers and in rows spaced 2'6" apart, provide faster, easier shoring for the job. The contractor reports savings of 25%.

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City_____ Zone___ State_____

(Continued from page 120)

addn. to high school, addns. to various schools, $5,000,000; 5 year program.

▲ **Calif., Santa Monica**—NATATORIUM—City Bd. Educ., 1333 6th St., plans by John C. Lindsay, 827 Moraga Dr., West Los Angeles, natatorium, cafeteria, student activities bldg., music bldg., girls' gymnasium, open air theater, and remodel library, etc. at Lincoln Junior High School $3,500,000. CD 8/1.

▲ **Conn., Naugatuck**—SCHOOL—Town, Town Hall, plans by Sherwood, Mills & Smith, 65 Broad St., Stamford, cinder block, brick facing high school, Rubber Ave., $2,000,000. Werner, Jensen & Korst, 641 Summer St., Stamford, and Hill & Harrigan, 909 Whalley Ave., New Haven, consult. engrs. CD 5/16.

Conn. New Britain—CLASSROOM—State P. Wks. Dpt., 165 Capitol Ave., Hartford, classroom for music drama and related arts, New Britain State Teachers' College, $975,500. CD 1/13/49.

Conn., West Hartford—CLUB HOUSE, etc.—Town, Town Hall, club house and indoor and outdoor swimming pools, Raymond Rd., $350,000.

▲ **Ill., Granite City**—SCHOOL—Granite City School Bd., 3100 Madison St., plans by Joseph D. Standish, Spivey Bldg., East St. Louis, three elementary schools, $1,199,307. CD 5/7/53.

Ill., Granite City—SCHOOL—Granite City School Bd., 3100 Madison St., plans by Joseph D. Standish, Spivey Bldg., East St. Louis, West Granite City Junior high school, $990,343. CD 5/7/53.

▲ **Ill., Granite City**—SCHOOL—Granite City School Bd., 3100 Madison St., postponed Sept. 28 bond election junior high school, three elementary schools, existing schools imprv. and addns. $2,447,650. Joseph D. Standish, Spivey Bldg., East St. Louis, archt. CD 8/16.

Ill., Palatine—SCHOOL—Palatine Comm. Consolidated School Dist. 15, Johnson St., plans by Zay Smith & Assocs., 407 LaGrange Rd., LaGrange, 2 story, brick elementary and junior high school, Winston Park Subdivision. $450,000.

† **Ky., Covington**—ARMORY—U. S. Eng., Louisville Dist., Louisville, 2 story, brick, armory bldg., $600,000.

▲ **Me., Farmington**—LABORATORY—State Dpt. Educ., State House, Augusta, plans by Alonzo J. Harriman Inc., 292 Court St., Auburn, home economics laboratory, State Teachers College, $1,000,000. CD 8/16.

† **Md., Baltimore**—ART GALLERY—City, City Hall, plans by Wrenn, Lewis & Jencks, 113 W. Mulberry St., Baltimore, Zone 1, and Fisher, Nes, Campbell & Assocs., 1020 St. Paul St., Baltimore, Zone 2, Walters Art Gallery enlargement program, at 1 W. Mt. Vernon Place, Baltimore, Zone 1, $9,000,000.

Md., Baltimore—SCHOOL—Baltimore Co. Bd. Educ., Aigburth Rd., Towson, Zone 4, plans by Hopkins, Pfeiffer and Fenhagen, 10 E. Mulberry St., Baltimore, Zone 2, school, Craigmont & Vanderwood Rds., $800,000. CD 11/9/56

Mass., Natic—SCHOOL—Town, Supt. Schools, Natic, plans by Smith & Sellew, 1283 Darthmouth St., Boston, junior high school, North Main St., $600,000. Constr. 1958. CD 3/11.

▲ **Mass., Newton**—SCHOOL—City, School Dpt., 40 Elm Rd., Newton, plans by Korslund, LeNormand & Quann Inc., 506 Washington St., Norwood, South Side High School, $1,000,000. CD 2/25.

▲ **Mass., Revere**—SCHOOL—City, School Dpt., 153 Beacon St., Revere, plans by Kelly & Gruzen, 177 State St., Boston, senior high school, East Mountain Ave., American Legion Hy., Ambrose & School Sts., $3,000,000. CD 9/28/54.

Mich., Erin—SCHOOL—Bd. Educ., Greater Gratiot Schools, Erin, plans by Wakely, Kushner, 21429 Mack St., Detroit, elementary-junior high school bldg., $500,000.

▲ **Mich., Oak Park**—SCHOOL—City, Louise Shaw, city clk., Oak Park, plans by O'Dell, Hewlett & Luckenback, 950 N. Hunter Blvd., Birmingham, elementary school, Northen and Parklawn Sts., $1,000,000. Bids Late Nov. CD 4/24.

▲ **Mich., Parchment**—SCHOOL—City, Bd. Educ., Parchment, bond election Sept. 10, Junior-Senior High School and elementary school, Barclay Hills Area, $1,974,000.

Mich., Warren—SCHOOL—Bd. Educ., Warren Consolidated School Dist., 5460 Arden St., Warren, plans by Wakely, Kushner, 21429 Mack St., Detroit, elementary school, $350,000. CD 12/2/55.

▲ **Minn., Anoka**—HOSPITAL ADDN.—State, Dpt. Admin., P. T. Peterson, dir, purch., 19 State Capitol, St. Paul, plans by Bettenburg, Townsend, Stolte & Comb, 1437 Marshall Ave., St. Paul, hospital addn., incl. 2 dormitories, infirmary and cafeteria, Anoka State Hospital, $1,500,000. Constr. 1959.

Mo., Aurora—HOSPITAL—City, City Hall, voted bonds July 30, hospital, $450,000.

Neb., Omaha—SCHOOL—Bd. Educ., of Omaha and University of Nebraska, 12 and R Sts., Lincoln, J. P. Lord School adjoining University of Nebraska Medical College and hospital campus $400,000; John Latenser & Sons, 1307 Farnam St., Omaha, Neb., consult. engrs.

Neb., Peru—COLLEGE—State Bd. Educ., Capitol Bldg., Lincoln, plans by John Latenser & Sons, 1307 Farnam St., Omaha, vocational arts bldg. at college, $475,000. CD 11/26/56.

▲ **N. J., Millville**—SCHOOL—Millville Bd. of Educ., plans by Howell Lewis Shay, 1801 Packard Bldg., Phila., Pa., Memorial high school addn. and alterations, $2,500,000. Bids in early 1958. Keast & Hood, 2031 Chestnut St., Phila., Pa., consult. engrs. CD 9/6/56.

N. Y., New York—SCHOOL—Bureau Constr. Bd. of Educ., 42-15 Crescent St., Long Island City, Proj. E-420, conversion of junior high school No. 7, $950,000. To go ahead after 1962.

▲ **N. Y., Southampton**—SCHOOL—Bd. of Educ., Southampton, voted bonds, high school, Hampton Road, $2,000,000.

O., Beachwood—SCHOOL—Bd. Educ., 24601 Fairmount Blvd., Cleveland, Zone 24, bond election Nov. 5, high school addn. $465,000. Fulton DelaMotte, Assoc., 6014 Euclid Ave., Cleveland, Zone 3, archts.

O., Berlin Heights—SCHOOL ADDN.—Berlin Heights Bd. of Educ., Berlin Heights, bond election Nov. 5, existing local school addn. $385,000.

▲ **O., Bowling Green**—SCHOOL—Eastwood No. 2 Local School Dist., Bowling Green, bond election Nov. 5, high school $1,348,000.

O., Bucyrus—HOME FOR AGED—Crawford Co. Comrs., Court House, bond election Nov. 5, county home for aged, $650,000. W. Howard Manor, Holland Theatre Bldg., Bellefontaine, archt.

O., Cincinnati—HOSPITAL ADDN.—Ohio Dpt. P. Wks., State Dpts. Bldg., Columbus, Zone 15, children's psychiatric unit, Longview State Hospital for Dpt. of Mental Hygiene and Correction, $480,000. CD 11/16/54.

O., Dayton—ADOLESCENT UNIT—Ohio Dpt. P. Wks. State Depts. Bldg., Columbus, adolescent unit, Dayton Hospital for Dpt. of Mental Hygiene & Correction, $480,000.

▲ **O., Lakewood**—CITY HALL—City, 14532 Lake Ave., Lakewood, Zone 7, bond election Nov. 5, city hall, $1,750,000; Garfield Harris, Schafer Flynn & Williams, 1740 E. 12 St., Cleveland 14, O., archts. CD 11/9.

▲ **O., Mineral Ridge**—SCHOOLS—Weathersfield Bd. of Educ., Mineral Ridge, bond election elementary school and high school addn. $1,100,000. CD 4/4.

O., Norton—SCHOOL ADDN.—Bd. of Educ., bond election, Nov. 5, high school addn. $475,000.

O., Ottawa—COUNTY HOME—Putnam Co. Comrs., Court House, bond election Nov. 5, county home. $600,000.

▲ **O., South Euclid**—SCHOOL—South Euclid-Lyndhurst Bd. of Educ., 4777 Farnhurst Rd., South Euclid, plans by Spahn & Barnes, 1950 Lee Rd., Cleveland, Zone 18, junior high school, $2,500,000. CD 7/25.

O., Wickliffe—SCHOOL ADDNS.—Wickliffe Bd. of Educ., 2221 Rockefeller Ave., Wickliffe, bond election Nov. 5 school addns. $965,000. Outcalf Guenther & Assocs., 13124 Shaker Sq., Cleveland, Zone 20, archts. CD 7/9.

R. I., Portsmouth—SCHOOL—Town, Merrill Hathaway, Sec'y, Bldg. Comm., Middle Rd., plans by Christopher D. Dutra, 158 Berkeley Ave., Middletown, Upper

(Continued on page 126)

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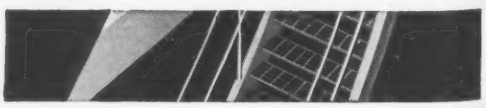

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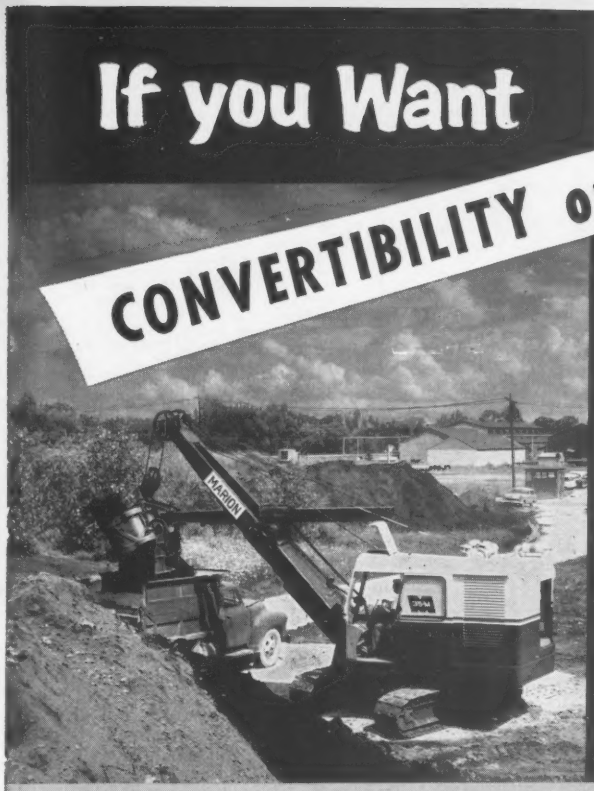

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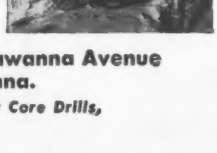

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(Continued from page 124)

Elementary School between Dexter & Sprague Sts. $413,520.

Tenn., Tazewell—HOSPITAL—Claiborne County Comrs., Tazewell, plans by Lindsay & Maples, 6 Cloverleaf Bldg., Knoxville, 40 bed hospital $600,000.

Tex., College Station—MAINTENANCE—A&M College of Texas, c/o System Administration Bldg., College Station, plans by Phillip G. Norton, 316 Administration Bldg. A&M Sys., College Station, college utilities and maintenance $800,000; C. J. Godwin, 1903 S. College St., Bryan, Tex. and Berbard Johnson & Assocs., 4926 Travis, Houston, Tex., consult. engrs. CD 6/25.

Tex., College Station—SHOP—A&M College of Texas c/o System Administration Bldg., plans by P. G. Norton, 316 Sys. Administration Bldg., College Station 5 shop units $150,000. Chas. Godwin, 1903 S. College St., Bryan, Tex., consult. engr. CD 10/8.

Tex., Odessa—SCHOOL—Odessa Independent School Dist., plans by Groos & Clift, 1900 Kermit Hy., Odessa, elementary school No. 1, $400,000; No. 2, $453,345. CD 5/29.

Vt., Bennington—LIBRARY—Bennington College, Brd. Trustees, Bennington, plans by Carl Kotch & Assoc., 55 Brattle St., Cambridge, Mass., library $500,000; 1958 constr. CD 7/1/55.

Ont., Guelph—BIOLOGY BLDG.—Ontario Dpt. Pub. Wks., Parliament Bldgs., Toronto, plans by Wm. R. Souter & Assocs., 36 James St., S., Hamilton, 3 story, bsmnt., 320x130 ft., brick biology bldg., Ontario Agriculture College $350,000. Wagner, McCargar & Filer, 42 James St., N., Hamilton, Ont., consult. engrs.

COMMERCIAL BUILDINGS

▲ **Calif., Calimesa (near Redlands)**—SHOPPING CENTER—George Gardner Jr., Calimesa, plans by Rack & DeMasirevich, 9½ State St., Redlands, shopping center, incl. 2 story shop and office bldg., 60-unit hotel $5,000,000.

▲ **Calif., Placerville**—HOSPITAL—Marshall Hospital Assocs., Placerville, hospital $1,000,000.

▲ **Colo., Denver**—HOME—Jewish National Home for Asthmetic Children, 3447 W. 19 St., Denver, plans by Linder, Wright & White, consult. engr.-archts., 831 14 St., Insurance Bldg., Denver, 2 story home incl. scientific laboratories and hospital rooms, $1,500,000.

Conn., Cromwell—CHURCH—First Congregational Church, 355 Main St., plans by Walter Crabtree, Jr., 195 Fern St., West Hartford, masonry, steel church school $350,000; John H. Cassidy, 3142 Fairfield Ave., Bridgeport, and Richard S. Leigh, Main St., Woodbury, Conn., consult. engrs. CD 6/4.

Fla., Fort Lauderdale—APARTMENT—Owner c/o Morton T. Ironmonger, archt., 1261 E. Las Olas Blvd., Ft. Lauderdale, 11 story, 40x164 ft., rein.-con. apartment bldg. with swimming pool, $500,000.

Ill., Chicago—HOSPITAL—Franklin Blvd. Comm. Hospital, 3240 W. Franklin Blvd., 2 story hospital addn., $350,000.

La., Patterson—SCHOOL—St. Mary Parish School Bd., Morgan City, plans by Lloyd J. Guiltory, 116 Chennault St., Morgan City, 20,000 sq. ft. elementary and high school, $350,000.

▲ **Md., Baltimore**—PARKING GARAGE—Minite Parking Corp., c/o Stanley Scherr, Equitable Bldg., Baltimore, Zone 2, plans by Bonnett & Brandt, 605 Park Ave., Baltimore, Zone 1, 10 story, 80x80 ft. rein. conc. brick, block, off-street parking garage, est. $1,000,000.

Md., Westminister—HOSPITAL—Carroll Co., Medical Center, Westminister, 50 bed, brick, conc. steel, block, Medical surgical unit, Carroll Co. General Hospital, $400,000.

Mass., Quincy—SCIENCE BLDG.—Eastern Nazarene College, Dr. Edward S. Mann, pres., 23 E. Elm St., Wollaston, plans by Clifford Broker Assoc., 18 Rockland Rd., Concord, N. H. science bldg. and boiler room addn., Quadrangle, $350,000. Constr. 1957. CD 12/14/49.

▲ **Mass., Peabody** — HOSPITAL ADDN. — Josiah B. Thomas Hospital, 17 King St., Peabody, plans by Curtin & Riley, 45 Newbury St., Boston, hospital addn., 17 King St., $2,000,000. CD 2/13.

Mass., Winchester—CHURCH—Church of the Epiphany, 70 Church St., Winchester, plans by Perry, Shaw, Hepburn & Dean, Park Square Bldg., Boston, church addn. incl. facilities for church school etc., $350,000. Constr. 1958.

Neb., Omaha—TRUCK TERMINAL—Buckingham Transportation Co., 308 W. Blvd., Rapid City, S. D., truck terminal, $200,000.

Nev., Elko—HOTEL—Daniel Bilboa, Elko, 88 room hotel, incl. swimming pool, shops, restaurant, at side of old Stockton Hotel $500,000.

N. H., Keene—SUPERMARKET—O. K. Fairbanks, Co., 84 Marlboro St., plans by Tracey & Hildreth, 4 Davis Court, Nashua, supermarket West St., $400,000. Bids Oct. 57.

N. H., Manchester—CHURCH—Franklin Street Congregational Church, Rev. George M. Hotten, Franklin St., plans by William L. Whitex, Spruce Knoll, Hampton Falls, church, $350,000; 1958 constr.

N. H., Nashua—DORMITORY—Rivier College, Nashua, plans by O. E. Nault & Sons, 48 Hamilton St., Worcester, Mass., 3 stories dormitory bldg. laboratory and library bldg. $400,000; laboratory and library for 1958 constr.

▲ **N. J., Elizabeth**—HOSPITAL—Alexian Hospital, Bd. Trustees, 655 E. Jersey St., plans by Schmidt, Garden

(Continued on page 128)

Suburban shopping center parking area is "easy rolling" for
BUFFALO-SPRINGFIELD
Standard-Duty Tandems

Above: **A Model KT-15A8 follows a paver at Indianapolis' Eastgate shopping center.** *Right:* **Compacting 2" asphaltic concrete wearing course with an 8-10 ton Buffalo-Springfield Standard-Duty Tandem.**

Shumaker Brothers Industries, Inc., contracted to pave the roadways and parking areas for Indianapolis' new 66-acre, $7,500,000 Eastgate 56-store shopping center.

The paved area of 128,000 sq. yds. required 43,400 tons of stone, 14,080 tons of asphaltic concrete, and 40,000 gallons of MCO liquid asphalt. Total depth of roadways is 10", parking areas 8". For the fast, efficient compaction of the stone base and the 2" asphaltic concrete wearing course, Shumaker relied upon his Buffalo-Springfield Standard-Duty Tandem Rollers.

Standard Duty Variable-Weight Tandems are available in 5 sizes: 5-8, 6-9, 8-10, 8-12 and 10-14 tons. Outstanding design and construction features include: choice of highly efficient gasoline or diesel power • finest adjustable bevel gear final drive • single power unit assuring precision alignment of final drive, engine and transmission • popular torque converter drive for speeds up to 5.6 mph. • jig-assembled, specially stressed all-welded frame • compact, low-pressure hydraulic steering • and adjustable, tapered roller bearing yoke and king pin assembly.

Contractors the country over use Buffalo-Springfield Standard-Duty Tandems . . . the finest rollers, for the dollar invested, on the market today. Before *you* buy, check their job-tested, proven-better features for road roller performance, economy, reliability and efficiency. Ask your Buffalo-Springfield distributor for details, or write for Bulletin S-68-R 157 now!

BUFFALO-SPRINGFIELD ROLLER CO.
DIVISION OF KOEHRING COMPANY · SPRINGFIELD, OHIO

(Continued from page 126)

& Erikson, 104 S. Michigan St., Chicago, Ill., existing building wing, East Jersey Street, $1,000,000.

▲ **N. J., Franklin Lakes**—HOMES—J. Nevin McBride, Fair Lawn Ave. at Rte. 208, Fair Lawn, 400 homes on Urban Farms on Franklin Turnpike, $12,000,000.

▲ **N. J., Highland Park**—APARTMENTS—Orchard Gardens, Inc., 243 Hansbury St., Newark, plans by William Chirgotis, 968 Stuyvesant Ave., Union, 2½ story brick veneer apartments on Crowles Road and Aurora St., $1,600,000. Constr. about 2 months.

▲ **N. J., Pennsville**—SHOPPING CENTER, etc.—Penfil Realty Co., c/o S. Freedman-Berton Lewis, Lewis Tower Bldg., Phila., Pa., plans by Cox & Guttman, 709 Market St., Camden, shopping center and paving, N. Broadway, $1,500,000.

N. J., Rutherford—STUDENT UNION—Fairleigh Dickinson University, 223 Montrose Ave., plans by Felheimer & Wagner, 155 E. 42nd St., New York 17, N. Y., student union bldg., $400,000. CD 8/14.

▲ **N. Y., Amherst**—HOMES—M. J. Peterson, Inc., 860 Englewood Ave., Buffalo, 238 homes known as Brook Run Estates, 60-acre tract, Frankhauser and Maple Rds., $4,800,000.

N. Y., Buffalo—DORMITORY, etc.—Buffalo Bible Institute, 827 Delaware Ave., Buffalo, plans by Clifford Broker Assoc., 18 Rockland Rd., Concord, N. H., combined men's dormitory and administration bldg., women's dormitory and classrooms. $500,000. Constr. in 1958.

▲ **N. Y., Buffalo**—DORMITORY—D'Youville College, 320 Porter Ave., Buffalo, 4-story dormitory, Porter and Fargo Aves., $1,044,000. CD 3/4/55.

▲ **N. Y., New City**—HIGH SCHOOL—Archdiocesan Bldg. Comn., 451 Madison Ave., New York, Zone 22, plans by Edward Fleagle, 18 S. Broadway, Yonkers, Albertus Magnus High School, 23-acre tract Rte. 304, $1,500,000. To be completed in Sept. 1959.

▲ **N. Y., New York**—OFFICE—United Engrg. Societies, 33 W. 39 St., New York, plans by Shreve, Lamb & Harmon Assocs., 114 44 St., New York, office, 1st Ave. 47-48 Sts.

▲ **N. Y., New York**—HOUSING—United Housing Foundation, 11 W. 42 St., New York, Zone 36, plans by Herman Jessor, 92 Liberty St., New York, Zone 6, Penn Station South HOUSES incl. nine 21-story apartment buildings for 2,520 families; two 2 story store bldgs. and shopping center on site bounded by 23 St., 29 St., 8 and 9 Aves., $28,400,000.

▲ **O., Cincinnati**—HOME FOR AGED—Bethesda Hospital, Oak & Winslow St., Cincinnati, plans by Sam Hannaford & Son, Dixie Terminal, Cincinnati, 3 and 4 story, brick, rein.-con. home for aged addns., alterations, Lafayette Ave. $1,200,000. CD 10/12/55.

▲ **O., Cincinnati**—MOTEL—Rudy Reinhold, 1010 Gilbert St., Cincinnati, plans by A. J. Martina, 2167 Florence St., Cincinnati, 5 story, 180,000 sq. ft. motel on Reading Rd., $3,000,000. E. M. Miller, 2167 Florence St., Cincinnati, consult. engr. CD 7/19/56.

O., Cleveland—HEADQUARTERS—Ohio Bell Telephone Co., 750 Huron Rd., Cleveland, Zone 15, plans by Garfield, Harris, Schafer, Flynn & Williams, 1740 E. 12 St., Cleveland, Zone 14, 7 story headquarters bldg. addn., Huron Rd., $500,000-$750,000.

O., Sharonville—HOSPITAL—Area Access Hospitals c/o Dr. Jos. Decorcy, 210 W. 9 St., Cincinnati, 1 story, 50-bed brick hospital for Sharonville area, $500,000.

Okla., Oklahoma City—OFFICE—A & A Typewriter Co., 315 N. Robinson St., plans by Robt. D. Stone, 1225 Linwood St., Oklahoma City, 4 story office and retail bldg., 13 and Robinson Sts. $350,000.

Okla., Oklahoma City—OFFICE—Local Savings & Loan, 201 N. Robinson St., plans by Sorey, Hill & Sorey, 809 N.W. 36 St., Oklahoma City, 6 story office, N. Robinson St., $750,000. CD 4/25.

Pa., Merion—SYNAGOGUE—Temple Adath Israel Temple of The Main Line c/o Mathew Weinstein, 1030 Lancaster Ave., Rosemont, plans by C. Frederick Wise, c/o owner, synagogue, $350,000. CD 4/25/55.

▲ **Tenn., Oak Ridge**—HOSPITAL—U. S. Atomic Energy Comn., Oak Ridge, plans by Sherlock, Smith & Adams, 303 Washington Ave., Montgomery, Ala., 175 bed hospital, $2,900,000. CD 11/21/55.

S. D., Sioux Falls—STUDENT UNION—Augstana College, 29 and S. Summit St., student union bldg., $600,000. Harold Spitznagel & Assocs., 1800 S. Summit St., Sioux Falls, archts. CD 8/9.

▲ **Tex., Corpus Christi**—HOTEL, OFFICE—C. G. Glasscock Sr., 16th Floor Wilson Tower Bldg., Corpus Christi, plans by Russell Barr Williamson, Oostburg, Wis., 2 story hotel, $10,000,000; 17 story office $6,000,000. CD 4/23.

Tex., Dallas—DWELLINGS—Staarnor A. Bowman, Contractor, 10579 Denton Dr., Dallas, 10 dwellings in Hockaday Square site, $525,000.

Tex., Dallas—DWELLINGS—Gregory E. Good Constr. Co., 10742 Lennon St., 10 dwellings, in Hockaday Square site, $550,000.

Tex., Dallas—DWELLINGS—Lee Constr. Co., 9307 Leaside St., 10 dwellings in Hockaday Square subdivision, $575,000.

Tex., Houston—DWELLINGS—Calhoun & Co., c/o C. O. Beeler, 4715 Calhoun St., plans by Crochet & Carroll, 6332 Long Dr., Houston, 40 dwellings, $389,000.

Tex., Houston—DWELLINGS—H&S Constr. Co., c/o Stewart Stannuel, 5623 Southbrook St., plans by Crochet & Carroll, 6332 Long Dr., Houston, 20 dwellings $370,700.

Tex., Houston—HOSPITAL—St. Elizabeth's Hospital, c/o Missionary Sisters of Immaculate Conception, 4514 Lyons St., plans by Hedrick, Stanley & Lightfoot, 5201 Fannin St., Houston, hospital addns., $350,000. CD 1/26/49.

Tex., Houston—DWELLINGS—Thed Constr. Co., c/o J. C. Thedford, 5759 Thrush St., plans by Crochet & Carroll, 6332 Long Dr., Houston, 27 dwellings $369,225; 23 dwellings $348,115.

Tex., Houston—DWELLINGS—Paul H. Wolf Constr. Co., 2418 W. Alabama St., 35 dwellings $350,000; 38 dwellings $373,500; in Carvercrest Addn.

▲ **Tex., Houston**—DWELLINGS—Richard Wright, c/o Crochet & Carroll, archts., 6332 Long Dr., Houston, 25 dwellings $358,000; 30 dwellings $378,150; 18 dwellings $348,700; 28 dwellings $369,500.

Tex., San Antonio—SHOPPING CENTER—Geo. Delevan, Jr. and Roy Baines, c/o Phillip Lloyd Shoop, archt., 122 W. Olmos Dr., San Antonio, abandoned proj. Unit D of North Towne Plaza shopping center, $450,000. CD 6/14.

▲ **Tex., San Antonio**—DWELLINGS—Quincy Lee Constr. Co., 211 Olmos Dr., West, 36 dwellings $360,000; 30 dwellings $355,750; 33 dwellings $369,440; 28 dwellings $346,875; 38 dwellings $380,000; 26 dwellings $345,000; "Skyline Park" subdivision, all unit No. 2, east of city north of Commerce St.

Tex., San Antonio—SHOPPING CENTER, etc.—Community Realty Co., 3022 E. Houston St., shopping center and supermarket for Handy-Andy Chain Stores, on proposed Hy. 90 East and Loop 13, $750,000.

▲ **Utah, Glen Canyon**—SHOPPING CENTER—Grand Development Co., Theodore I. Geirts, 169 E. 4th St., S., Salt Lake City, plans by Eduard Dreier, 343 S. State S., Salt Lake City, shopping center at new Glen Canyon town about 14 mi. from the Glen Canyon Constr. Proj. to incl. food store and some 20 retail outlets, $1,000,000.

▲ **Va., Arlington**—HOSPITAL—Northern Virginia Doctors Hospital Corp., c/o Dr. R. A. Rounds, 478 Leesburg Pike, Falls Church, plans by John H. Graham & Assoc., 2430 Pennsylvania Ave., N. W., Wash., D. C., constr. hospital and convalescent home at S. Carlyn Springs Rd. between 5th and 6th Rds. $2,000,000-$4,000,000.

Ont., Toronto—APARTMENT—J. Binder, 1411 Eglinton Ave., W., Toronto, plans by Irving D. Eoigon, 1896 Ave. Rd., Toronto, 5½ story, 146x56 ft., concrete block, structural steel frame apartment bldg., 418-422 Eglinton Ave., W., $350,000.

INDUSTRIAL BUILDINGS

Ala., Birmingham—PARKING—Allright Parking Co., 1122 Prairie St., Houston, Tex., 3 deck, bsmnt. concrete, steel parking garage at 19 St. N. and Morris Ave., $300,000.

Calif., San Leandro—PLANT ADDN.—Flintkote Co., Pioneer Div., 2000 First Blvd., San Leandro, 75,000 sq. ft. plant addn. $550,000.

▲ **Ga., Augusta**—PLANT—Marks Oxygen Co., 1815 15 St., Augusta, liquid oxygen plant, $1,000,000.

Ill., Chicago Heights—FACTORY—Mohawk Tablet Co., 1703 East End Ave., plans by Thulin Woods & Isenee, 105 S. LaSalle St., Chicago, 1 story, 23,000 sq. ft., brick factory addn. $150,000.

▲ **Ill., Moline**—ADMINISTRATION—John Deere & Co., 1325-3 Ave., plans by Eero Saarinen, W. Long Lake Rd., Bloomfield Hills, Mich., administration building. $5,000,000.

Ill., Palatine—FACTORY-OFFICE—Standard Safety Equipment Co., 232 W. Ontario St., plans by Charles Klopp & Assocs., Benton Ave., 1 story, factory and office with parking area, $100,000.

▲ **Ill., Pekin**—PLANT—Central Illinois Light Co., 316 S. Jefferson Ave., steam power plant on west side of Illinois River north of Pekin, $26,000,000. To be completed by 1960.

▲ **Ind., Richmond**—FACTORY—Eaton Mfg. Co., 9771 French St., Detroit, Mich., factory addn. Automotive Gear Division, $1,500,000.

Kan., Leavenworth—INDUSTRIAL BLDG.—Leavenworth Industrial Development Corp., Leavenworth, plans by J. W. Radotinsky, Kansas City, Kan., industrial bldg., $200,000.

▲ **Ky., Louisville**—PLANT—Felter Printing Co., 235 E. Walnut St., plans by McCulloch & Bickel, 1115 S. 4th St., Louisville, printing plant and office, Locust Lane. $2,000,000. E. R. Ronald & Assoc., 554 S. 3rd St., Louisville, consult. engrs.

Ky., Louisville—WAREHOUSE—Mack Truck Co. Inc., 225 E. Walnut St., plans by Arthur Tafel Jr., 230 W. Liberty St., Louisville, Zone 1, concrete slab, masonry walls, warehouse and office, Farmington Ave. $500,000.

Ky., Pikeville—PLANT—Hayes Metal Product Co., Hi. Hat, Ky., metal processing and storage plant for iron ore. $100,000.

▲ **La., Shreveport**—ISOMERIZATION PLANT—Atlas Processing Co., 3546 Midway St., Shreveport, 3000 bbl. daily cap., isomerization plant, $2,000,000.

Mass., Woburn—PLANT—Caladine Co., c/o W. H. Ballard Co., 45 Milk St., Boston, Mass., 46,000 sq. ft. manufacturing plant, Rte. 128 and Washington St. $500,000. Richard J. Donovan Inc., 540 Main St., Winchester, Mass., consult. engr.

▲ **Mo., Kansas City**—PLANT—Western Electric Co. Inc., 195 Broadway, New York, N. Y., plant to manufacture electronic parts of Bell sys., $20,000,000.

N. J., Stratford—SERVICE AND OFFICE—Owner c/o Cox & Guttman, archts., 709 Market St., Camden, service and office bldg., $120,000. Bids in early Sept.

N. Y., Hicksville—FREIGHT YARD, STATION—Long Island R.R. Co., F. Aikman, Jr., ch. engr., Jamaica Station, Jamaica, Zone 32, new freight yard and station near Charlotte Ave. $840,000.

Okla., Harrah—TRANSFORMER STATION—Oklahoma Gas & Electric Co., 321 N. Harvey St., Oklahoma City, switching and transformer station at Horseshoe Generating Plant, $100,000. Leo Nash, c/o owner, engr.

Pa., Greenville—FACTORY—Pillsbury Mills, Pillsbury Blvd., Minneapolis, Minn., 100,000 sq. ft., refrigerated dough products mfg. factory, over $500,000.

▲ **Tex. Bridgeport**—PLANT—Christle, Mitchell & Mitchell Co., c/o Houston Club Bldg., Houston, 150,000,000 ft. gas daily and 220,000 gal. products daily capacity gas processing plant, $1,750,000.

Tex., Lufkin—PLANT—Lufkin Foundry & Machine Co., Lufkin, 110x500 ft. steel plant addn., $200,000.

Tex., Wichita Falls—PLANT—West Texas Rendering Plant, Old Burk Rd., reconstr. of plant, $150,000.

▲ **Utah, Monticello**—PLANT—Texas Co., 205 E. 42nd St., New York, N. Y., gasoline plant to be built in four corners area near here. $6,000,000-$12,000,000.

Ont., Hamilton—LABORATORY—Proctor & Gamble Co. of Canada Ltd., Burlington St., E., Hamilton, plans by Wm. R. Souter & Assocs., 36 James St., S., Hamilton, 2 story 110x50 ft., concrete fdn., product research and development laboratory $450,000. Wagner, McCargar & Filer, 42 James St., N., Hamilton, Ont., consult. engrs.

Ont., Toronto—ASSEMBLY—Linde Air Products Co., 2221 Yonge St., plans by Alan E. Jessop, Thornhill, equipment assembly bldg., Davenport Road east of Christie St., $120,000.

Que., Acton Vale—INDUSTRIAL—Carolyn Chenilles of Canada Ltd., Bernard St., Acton Vale, plant extension, $100,000.

Que., Granby—PLANT—La Motse Engrg. Co., c/o City, City Hall, plant, west section of city. $150,000-$200,000.

Que., Montreal—INDUSTRIAL—Golcanda Builders Corp., 155 Port Royal Ave., Montreal, 2 story, 16,000 sq. ft. rein.-con. frame, industrial, Port Royal Ave. $110,000.

UNCLASSIFIED

▲ **Florida**—DISTRIBUTION LINE—Withlacoochee River Elec. Coop., Inc., Dade City, 132 mi. rural distribution line, sys. imprv. Pasco Co. $1,125,000.

Georgia—DISTRIBUTION LINE—Oconee Electric Membership Corp., Dudley, 16 mi. rural distr. lines, and sys. imprv., Laurens Co., $160,000.

▲ **Illinois**—PETROLEUM PIPE LINE—Ohio Oil Co., 539 S. Main St., Findlay, O., constr. 12-in. petroleum pipe line for 85 mi. between Robinson, Ill. and Champaign, Ill., $3,671,000.

Ill., Cicero—RACETRACK—Sportsmans Park Race Track, 3301 S. Laramie Ave., plans by Howard Kessler, 945 Chicago Ave., Evanston, Ill., racetrack addn., $400,000.

† **Kan., Hutchinson**—AIR CONDITIONING—General Services Admin., 18th & F Sts. N.W., Wash., D. C., air-conditioning, U. S. Post Office, $107,000. Oakle P. Bullock, 254 Laura St., Wichita, Kan., consult. engr.

Ky., Louisville—PARKING LOT—City, 6th & Jefferson St., Louisville, landscaped parking. $250,000.

Louisiana—CRUDE OIL LINE—American Louisiana Pipeline Co., Baton Rouge, La., 12- to 16-in. crude oil line laying from Cameron Meter Station to Bayou Fields and to Meter Station at Holly Beach, $166,500.

▲ **Massachussetts**—BEACH IMPRVS.—Commonwealth of Mass., Metropolitan Dist. Comn., Parks Div., 20 Somerset St., Boston, Wollaston Beach Imprvs., $1,200,000. Constr. 1958.

▲ **Minn., Bayport**—YACHT BASIN—H. A. Goglin, 1114 Lane Plance, St. Paul, yacht basin on site along St. Croix River, incl. 400 boat capacity, swimming pool, boat-el, motel, etc., $1,000,000.

Minn., Fergus Falls—BOILER PLANT—State Dpt. Admin., P. T. Peterson, dir. purch., 19 State Capitol, St. Paul, boiler plant rehabilitation, at Fergus Falls State Hospital, $540,280. G. M. Orr Engr. Co., 1104 Currie Ave., Minneapolis, Minn., consult. engr.

Minn., Stillwater—POWER PLANT—State, Dpt. of Admin., P. T. Peterson, dir. purch., 19 State Capitol, St. Paul, power plant and rewiring at State Prison, $114,720. G. M. Orr Engineering Co., 1104 Currie Ave., Minneapolis, Minn., consult. engr.

Missouri—RURAL ELECTRIC SYSTEM—Macon Electric Co-Operative, W. E. Adams, mgr. Macon, rural electric system imprvs. and extens. incl. 29 mi. distribution lines, 92 mi. of tie lines and 1400 cap. transformers, $110,000.

▲ **Tex., Beaumont**—COLISEUM—City, City Hall, voted bonds Aug. 17, Babe Zaharias Memorial Coliseum $2,500,000. CD 8/7.

▲ **Tex., Galveston**—WHARF EXPANSION—Port of Galveston, Port Commn., Galveston, wharf expansion for 1957, $4,000,000. CD 3/5.

Wisconsin—DISTRIBUTION LINE—Clark Electric Coop., Greenwood, 7 mi. electric distribution line and sys. imprv., Clark Co. $312,000. CD 9/16/53.

Alaska—DIESEL GENERATING UNIT—Kodiak Electric Assn., Inc., Kodiak two new 800 kw diesel generating unit to powerhouse and 3000 kv substation alterations, $450,000. CD 10/16/51.

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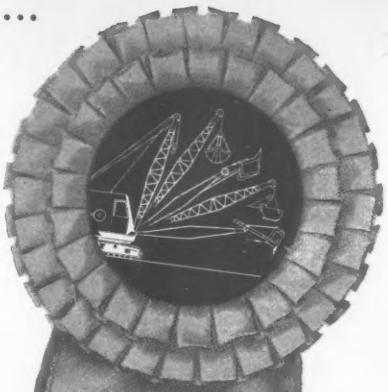

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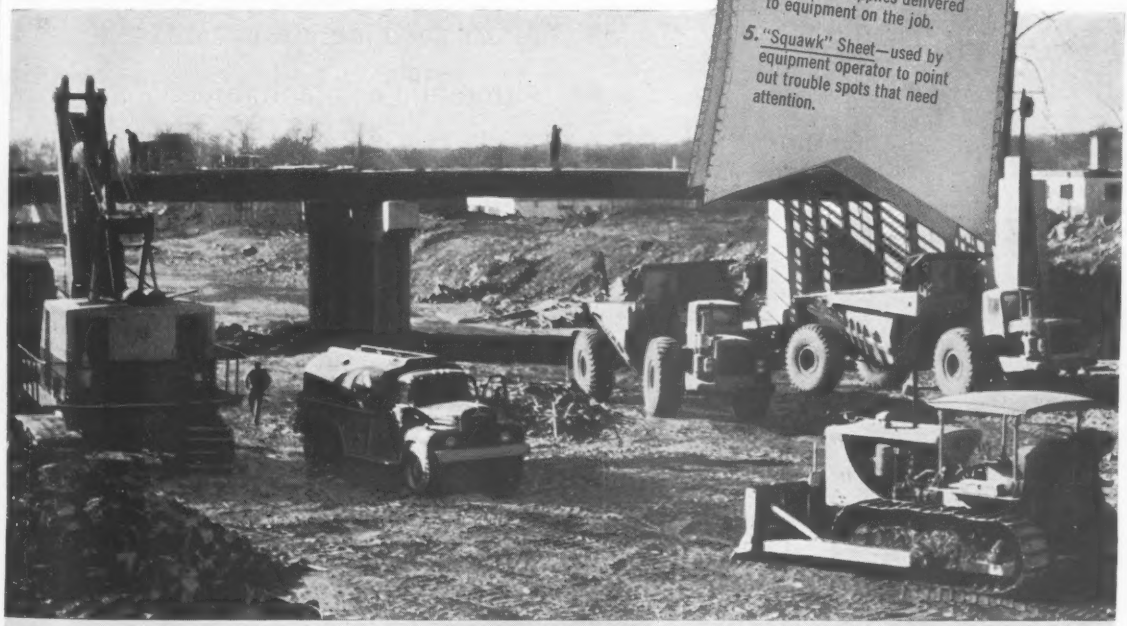
3. Weekly Service & Inspection Report—an up-to-date record of mechanical condition of equipment, work to be done or completed.
4. Delivery Ticket—lists petroleum supplies delivered to equipment on the job.
5. "Squawk" Sheet—used by equipment operator to point out trouble spots that need attention.



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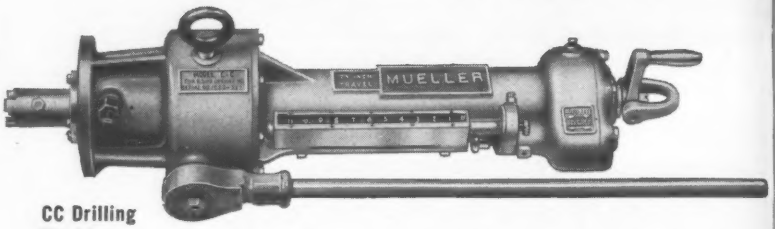
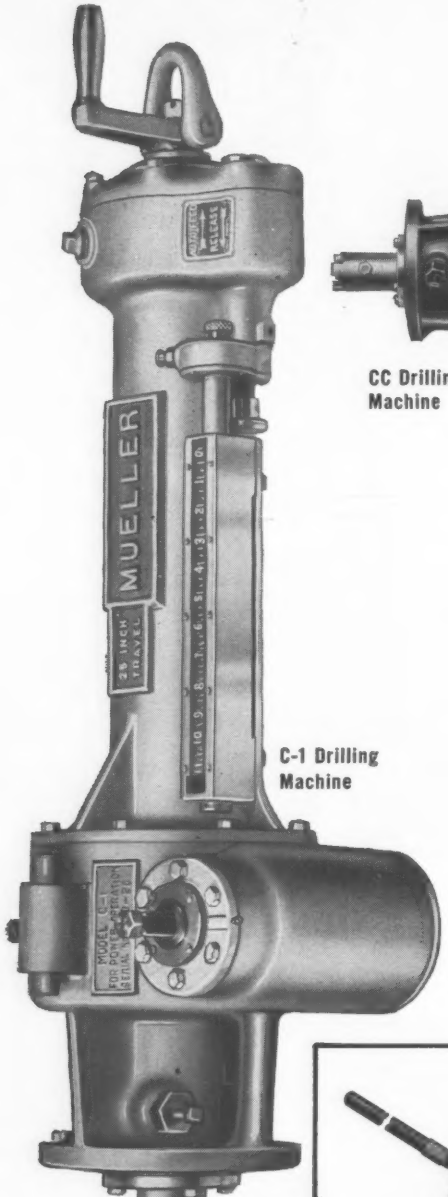


CC Drilling Machine



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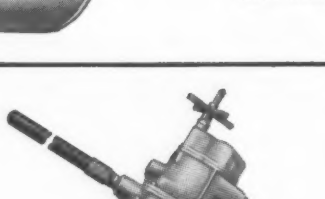

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STATE HIGHWAY LETTINGS
BRIDGES
September 9 Connecticut September 12 New Hampshire
STREETS AND ROADS
September 9 Connecticut

BUILDINGS—LB & CA

▲ **Gilbane Bldg. Co.,** 90 Calverley St., Providence, R. I., LB $2,151,000, combined bid DORMITORIES AND DINING HALL, Waterman and Angell Sts. and Benefit and Prospect Sts., LB $759,000, DINING HALL only, PROVIDENCE, R. I. Rhode Island School of Design, 14 College St., Providence, R. I. Bids Aug. 23. CD 7/26;
E. Turgeon Constr. Co., Inc., 42 Weybosset St., Providence, R. I., LB $1,392,000, DORMITORIES only (PROVIDENCE, R. I.).

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 13 Pennsylvania

▲ **N. Y., Brooklyn**—STREET, YARD IMPRVS.—BA 9/10—New York City Housing, 299 Broadway, New York, Zone 7, street and yard imprvs. for Summer Houses, Section II, Proj NYS-58-4, in area bounded generally by Myrtle Ave., Summer Ave., Park Ave. and Throop Ave.; topsoiling and planting for same, Plans deposit $25 each. CD 2/7/52, under Public Buildings.

BUILDINGS—BA

▲ **Pa., Harrisburg**—HOSPITAL RESIDENCE—BA 9/17—Harrisburg Hospital, S. Front St., nurses residence near present hospital $3,000,000. Plans deposit $50. Lawrie & Green, 321 N. Front St. archts. CD 7/23, under LB.

▲ **Pa., Bristol** — SCHOOL — BA 9/24 — Bristol Twp. School Auth., Rogers Rd., 1 and 2 story, brick, steel, concrete Franklin D. Roosevelt High School. $1,800,000. Micklewright & Mountford, Morrisville, archts.-engrs. CD 2/26.

HEAVY CONSTRUCTION—LB & CA

▲ **Hendrickson Bros., Inc.,** 63 N. Central Ave., Valley Stream, N. Y., CA $3,692,452. sewers in Island Park-Oceanside Area; sewage pumping station on Long Beach Rd., north of Barnum Channel, Oceanside, MINEOLA, N. Y. County Executive, Nassau Co., Old County Court House, Mineola, N. Y. Bids Aug. 13. CD 7/17.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Public Constructors, Inc., Browning Rd. and Kings Hy., Bellmawr, N. J. CA $3,527,356, grading, paving 2.3 mi. section of F.A.I. Route 102, Sect. 2a, at Clinton, Hunterdon Co. CD 7/26, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,
S. J. Groves & Sons Co., U. S. Hy. No. 9, Woodbridge, N. J. CA $3,947,926, grading, paving 2.3 mi. section of F.A.I. Route 101 between Route 15 at Wharton, and Mt. Hope-Rockaway Rd., Morris Co. Bids July 25. CD 7/30, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Union Bldg. & Constr. Corp., 631 Main Ave., Passaic, N. J., CA $4,949,987, grading, paving 2.4 mi. section of F.A.I. Route 101, Sect. 2a, between Mt. Hope-Rockaway Rd. and existing Route U.S. 46 near Denville, Morris Co. Bids July 30. CD 8/1, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Public Constructors, Inc., Gloucester, N. J., CA $2,215,039, constr. 4 bridges and grading 2 mi. portion of F.A.I. Route 108, Sect. 2B, in Haddon Heights, Barrington and Lawnside, Camden Co. Bids July 23. CD 8/1, under LB.

BUILDINGS—LB & CA

▲ **C. E. Youngdahl & Co., Inc. and Psaty & Fuhrman, Inc.,** 369 Lexington Ave., New York 17, N. Y. LB $12,715,000, general constr. and foundations, Louis Heaton Pink HOUSES, Proj. NY-5-35, in area bounded by Linden Blvd., Elderts Lane, Stanley Ave. and Crescent St., BROOKLYN, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids Aug. 27. CD 8/8;
Heating Maintenance Corp., 220 E. 138 St., New York 51, N. Y. LB $1,259,800, heating and ventilating work for houses (Brooklyn, N. Y.).
Rao Electrical Equipment Co. Inc., 314 E. 39 St., New York 16, N. Y. LB $721,000, electrical work for houses (Brooklyn, N. Y.);
Jarcho Bros., Inc., 38-18 33 St., Long Island City, N. Y. LB $1,498,650, plumbing work for houses (Brooklyn, N. Y.)

▲ **Irwin & Leighton, Inc.,** 1505 Race St., Phila., Pa. CA $2,104,000. combined bid, CIVIL ENGINEERING BLDG. and AERONAUTICAL WING and MECHANICAL ENGINEERING BLDG., ITHACA, N. Y. Cornell University, Ithaca, N. Y. Bids June 28. CD 7/25, under LB.

▲ **Park Ridge Homes,** c/o Henry A. Klar Realty Co., 220-02 Horace Harding Blvd., Bayside Hills, N. Y., Owner Builds. $2,000,000, 120 HOUSES, 226 St. and South Conduit Ave., LAURELTON, N. Y.

▲ **C. E. Youngdahl & Co. Inc., and Psaty & Fuhrman, Inc.,** 369 Lexington Ave., New York 17, N. Y. LB $5,677,000 (5 bidders) general constr. and foundations for Baruch HOUSES, Proj. NY-5-12, Section III, Bldgs. 12, 13, 14, 15 and 17 in area bounded by E. Houston St., Baruch Dr., Delancey St. and Columbia St., NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids Aug. 26. CD 8/8;
Heating Maintenance Corp., 220 E. 138 St., New York 51, N. Y. LB $384,800 (6 bidders) heating and ventilating work for Baruch Houses (New York, N. Y.);
Novak & Co., Inc., 1503 East New York Ave., Brooklyn 12, N. Y. LB $693,237 (7 bidders) plumbing work for Baruch Houses (New York, N. Y.)

▲ **Caldwell-Wingate Co.,** 101 Park Ave., New York 17, N. Y., CA $5,600,000. third section of Jefferson HOUSES, NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids May 28. CD 6/14, under LB.

▲ **Irons & Reynolds Inc.,** 420 Lexington Ave., New York 17, N. Y., CA Est. $3,500,000. 11 story penthouse, RESEARCH LABORATORY AND OFFICE 511-15 E. 71 St., NEW YORK, N. Y. Muscular Dystrophy Assocs., 1790 Broadway, New York 19, N. Y. Bids July 22. 7/15.

▲ **Lazere Constr. Co.,** 66 Park Ave., New York 16, N. Y., CA $3,331,000 (4 bidders) general construction, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures for JUNIOR HIGH SCHOOL 22 and Hamilton Fish Park Branch LIBRARY, Columbia, Sheriff and E. Houston Sts., Manhattan Boro, NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Aug. 14. CD 7/17.

▲ **Scarsdale Woods Homes** c/o Louis E. Ordwein, archt., 51 E. 42 St., New York 17, N. Y., Owner Builds $1,875,000. 48 HOUSES, Andsley Rd., west of Central Ave., SCARSDALE, N. Y.

▲ **Mahony-Troast Constr. Co.,** 790 Bloomfield Ave., Clifton, N. J. CA Est. $2,000,000. 8 story, 100,000 sq. ft. OFFICE BLDG., Bridge Plaza, FORT LEE, N. J., National Publishing Co. (Bridge Plaza Terminal, Inc.) 15 West 44 St., New York, N. Y. Lester Cohen, 234 Clinton Place, Hackensack, N. J., archt. (Correction—contractor changed). CD 2/20, under CA.

▲ **Grantwood Homes,** c/o Pasford Ltd., 37-01 Broadway, Fairlawn, N. J. Owner Builds. $1,900,000. 95 HOUSES. Grand St., near River Rd., MILFORD, N. J.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 18 Tennessee September 19 Florida
STREETS AND ROADS
September 18 Tennessee September 19 Florida
September 20 Kentucky

BUILDINGS—LB & CA

▲ **M. R. Harrison Constr. Corp.,** 630 NW 54 St., Miami, Fla., LB $2,487,780 (12 bidders) 7 story bsmnt., 720 unit DORMITORY, Ponce DeLeon Blvd., and Miller Dr., CORAL GABLES, FLA. University of Miami, 1200 Campo Sano Ave., Coral Gables, Fla. Bids Aug. 20. CD 8/5.

▲ **G. M. Sipple Constr. Co.,** First National Bank Bldg., Orlando, Fla., CA Est. $2,000,000, BANK, Orange Ave. and Church St., ORLANDO, FLA. First National Bank of Orlando, 190 S. Orange Ave., Orlando, Fla. CD 8/29.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 10 Indiana

BUILDINGS—LB & CA

▲ **National Eng. & Contg. Co.,** 1968 W. 3 St., Cleveland 13, O., LB $1,564,147 (4 bidders) BUS GARAGE, Lakewood Heights Blvd., CLEVELAND, O. Cleveland Transit System, 1404 E. 9 St., Cleveland 14, O. Bids Aug. 23. CD 8/15.

▲ **Esch Constr. Co.,** 6203 Superior Ave., Cleveland 3, O., LB Est. $1,500,000. HIGH SCHOOL in Rocky River, CLEVELAND HEIGHTS, O. Lutheran Bd. Educ., 2648 Prospect Ave., Cleveland 15, O. Bids Aug. 8. CD 8/2.

▲ **Lake Breeze Homes,** 712 Marshall Bldg., Cleveland 13, O., Own Forces. $3,362,500. 250 HOMES, Lake Breeze Rd., SHEFFIELD LAKE, O. Marvin Rukin, 13947 Cedar Rd., Cleveland Heights 18, O., archt.

▲ **Bryant & Detwiler Co.,** 2110 Penobscot Bldg., Detroit, Mich., CA Est. $5,500,000, BUS TERMINAL and parking facility, Bates, Randolph, Larned and Congress Sts., DETROIT, MICH. Great Lakes Greyhound Corp., 2301 West Lafayette St., Detriot, Mich. Bids Aug. 14. CD 8/14.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
October 10 South Dakota
STREETS AND ROADS
September 17 Minnesota

BUILDINGS—LB & CA

▲ **Sebastian Corp.,** 414 Detering St., Houston, Tex., LB $1,926,000, est. $1,500,000, 370,000 sq. ft. prof. self parking GARAGE, HOUSTON, TEX. Hermann Estate, 6410 Fannin St., Houston, Tex., or c/o Hedrick, Stanley & Lightfoot, archts., 5201 Fannin St., Houston, Tex. Bids Aug. 14. CD 7/16.

▲† **J. G. Watts Constr. Co.,** Wallace Rd., Salem, Ore., CA $2,513,746, constr. TM Site 179, miltiary installation, Inv. 57-68, KALISPELL, MONT. U. S. Eng., 4725 E. Marginal Way, Seattle, Zone 4, Wash. Bids July 2. CD 7/11, under LB.

FAR WEST

HEAVY CONSTRUCTION—LB & CA

▲ **Tullar Power Constr., Inc. & Assocs.,** 3214 W. McGraw St., Seattle, Wash., CA $2,552,578, electrical contract for final stage constr. of Rocky Reach Dam, WENATCHEE, WASH. Chelan Co. Public Utility Dist., 327 N. Wenatchee Ave., Wenatchee, Wash. Bids June 14. CD 5/8.

BUILDINGS—LB & CA

▲ **Dinwiddie Constr. Co.,** 210 Crocker Bldg., San Francisco, Calif., CA $2,815,000, 7 story, bsmnt., and 2 story wing, 140,500 sq. ft. ADMINISTRATION BLDG., BERKELEY, CALIF. University of California, Administration Bldg., Bd. Regents, Berkeley, Calif. Bids Aug. 13, awarded Aug. 20. CD 8/21, under LB.

▲† **Murray-Sanders Co.,** 2116 S. Main St., Santa Ana, Calif., CA $5,018,000, constr. 360 Capehart HOUSING Proj. at Point Mugu, NBy CH-14852, POINT MUGU, CALIF. P. Wks. Office, 11th Naval Dist., San Diego, Calif. Bids Aug. 15, awarded Aug. 19. CD 8/20, under LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 11 Ontario

▲ **Que., Montreal**—AIR TERMINAL—BA 10/10—Dpt. Transport, Hunter Bldg., Ottawa, Ont., air termanal bldg. at Montreal Airport, Dorval, $10,000,000-$12,000,000. Plans deposit $500. Illsley, Templeton & Archibald and Larose & Larose, 1440 St. Catherine St. W., archts. CD 9/1/54, under Que., Dorval.

BUILDINGS—SLC

▲ **Ont., St. Mary's**—FACTORY—Hinde & Dauch Paper Co. of Canada Ltd., 43 Hanna Rd., Toronto, soon lets contract. 1 story 130,000 sq. ft., steel, masonry corrugated box factory. $1,500,000. CD 7/2.

HEAVY CONSTRUCTION—LB & CA

▲ **Rayner-Atlas Ltd.,** 46 Eglinton Ave., E., Toronto, Ont., LB $1,977,000 (6 bidders) (b) approx. 11,498 lin. ft. Humber River Sanitary Trunk Sewer extending westerly and northerly from point on Riverwood Parkway to Lambton Golf Course, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids July 22. CD 6/21.
S. McNally & Sons Ltd., 1544 Queensway, Toronto, Ont., LB $897,505 (6 bidders) (a) approx. 3,283 lin. ft. Humber River Sanitary Trunk Sewer extending northerly and westerly from Humber Sewage Treatment plant to point on Riverwood Parkway (Toronto, Ont.).

BUILDINGS—LB & CA

▲ **Smith Bros. & Wilson Ltd.,** 1267 Richards St., Vancouver, B. C. CA $3,494,654. 12 story, 176,000 sq. ft., rein.-con. William Farrell OFFICE addn. Robson and Seymour Sts., VANCOUVER, B. C. B. C. Telephone Co., 768 Seymour St., Vancouver, B. C. Awarded Aug. 23. CD 12/20.

▲ **Acme Constr. Co. Ltd.,** Rothesay Ave., St. John, N. B. CA $1,533,918. using limestone, CUSTOMS BLDG., SAINT JOHN, N. B. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids July 17, awarded Aug. 20. CD 8/20, under LB.

▲ **Pigott Constr. Co., Ltd.,** 1510 Drummond St., Montreal, Que. CA Est. over $2,000,000. 9 story, 300,000 sq. ft. rein.-con., steel DEPARTMENT STORE exten., MONTREAL, QUE. The T. Eaton Co. Ltd., 677 St. Catherine St. W., Montreal, Que. Bids Aug. 8, awarded Aug. 21. CD 7/31.

▲ **Omega Constr. Co. Ltd.,** 6555 Cote des Neiges Rd., Montreal, Que. CA $1,500,000. CONCERT HALL, MONTREAL, QUE. Sisters of the Holy Names of Jesus and Mary, 1420 Mount Royal Blvd., Montreal, Que. Felix Racicot, R.R. 4, Sorel, Que., archt. Awarded Aug. 21.

(Proposal Advertisement see pp. 147 to 150)

BIG YELLOW TEAM KEEPS HOT MIX MOVING AT 150 TONS PER HOUR

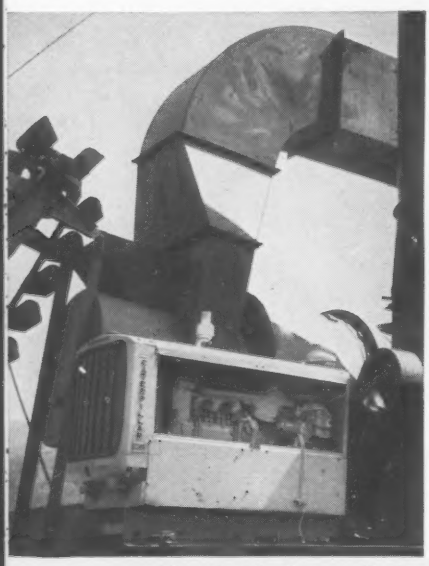
Commonwealth Construction Co., Ltd., of Vancouver, B. C., Canada, depends on Caterpillar equipment for its road building jobs. The pictures shown here were taken near Clearwater, B. C., where 11.3 miles of highway were being surfaced with hot mix.

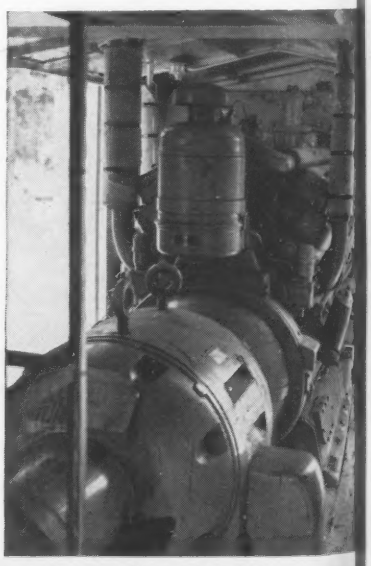
Included in Commonwealth's big yellow team at the mixing plant are a CAT* D318 Engine that drives the blower, a D342 that drives the mixer and a D364 Electric Set that runs the dryer, bucket line, pumps, burners, lights and conveyors. Hourly production is approximately 150 tons of material.

Power for the portable crusher is supplied by another Caterpillar D342 Engine. A D318 powers the 1-yard dragline that loads the hopper, and a Cat D6 Tractor stockpiles the gravel as it comes from the crushing plant, handling about 1,800 tons a day. The seventh Caterpillar machine in the line-up is a No. 112 Motor Grader, used for scarifying and leveling the road.

Many contractors have found it pays to keep Cat equipment predominant in their spreads. Operators are familiar with Cat-built machines and feel at home with them. Rugged design, good control and ease of maintenance are other qualities which operators like about Cat equipment.

A quarter century of diesel leadership has produced a line of engines that are unbeatable for heavy-duty work. They're built to operate steadily, without fouling, on a wide variety of low-cost fuels, including ordinary No. 2 furnace oil. There are no cylinder ports to clean, and simple, single-orifice fuel injection valves need no cleaning or adjustment. Lubrication schedules are also simplified when all equipment is Caterpillar-built.





Three Cat Diesels power the Standard Steel hot mix plant: A D318, left; D342, center; and a D364 Electric Set, right.

This D342 Engine drives the Pioneer portable crusher. In background, working on the gravel stockpile, is a Caterpillar D6 Tractor.

One of the most important factors in standardization is the availability of prompt, efficient service on all machines from a single, responsible source—your Caterpillar Dealer.

He has facts and figures to prove the dollars-and-cents advantages of making Cat equipment the backbone of your spread. And he backs the long work life of that equipment with reliable service and Caterpillar parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

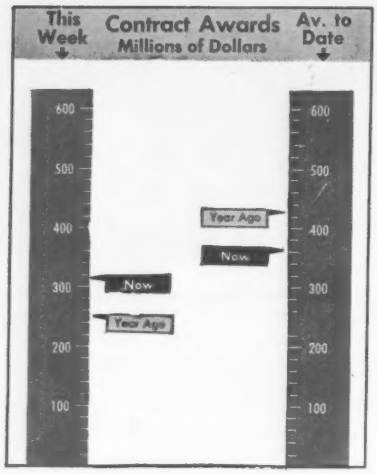
*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

The Koehring dragline, with 1-yard bucket, is powered by a Cat D318 Engine.

A Caterpillar No. 112 Motor Grader scarifies and grades road surface before asphalt mix is laid.

Construction Scoreboard

Activity this Week



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 36 wks 1957	Chge '56-'57 %
		millions	
Federal	$24.0	$1843.5	+51
State and Municipal	181.9	5,302.2	+18
Total Public	205.9	7,145.7	+25
Total Private	108.2	6,008.4	−37
U. S. Total	$314.1	$13,154.1	−14
By Type of Work			
Waterworks	$4.0	$250.5	+0.4
Sewerage	12.2	389.1	−6
Bridges	4.8	516.5	+23
Highways	58.7	2,218.7	+31
Earthwork, Waterways	62.2	829.5	+56
Buildings:			
Public, Excl. Housg.	45.3	1,606.8	+13
Public Housing	12.8	490.3	+122
Private Housing	56.4	2,087.7	−48
Commercial	42.2	1,255.8	+2
Industrial	8.5	2,322.3	−39
Unclassified	7.0	1,186.9	−3
U. S. Total	$314.1	$13,154.1	−14

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

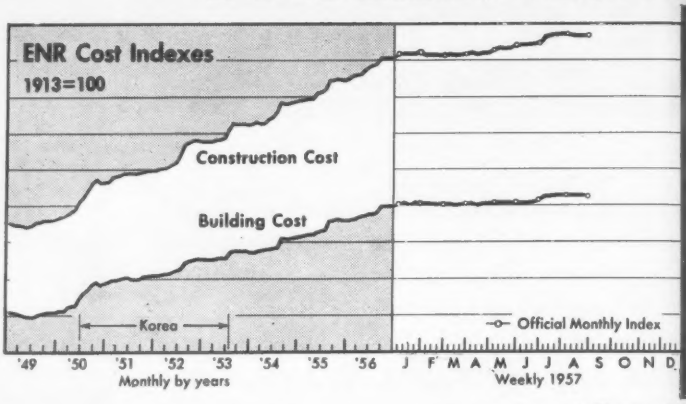
	Week of Aug. 29	Cum. 35 wks 1957	Chge '56-'57 %
	millions		
Corporate Securities	$71.5	$3,910.1	+24
State and Municipal:			
All Except Housing	112.2	3,697.3	+20
Housing	...	155.8	+268
Federal Loans	4.8	163.7	+30
Federal Aid	...	2,161.2	+102
Total Nonfederal	$188.5	$10,088.1	+35
Federal Appropriations:			
In U. S.	$1,625.7	$2,725.1	−21
Outside U. S.	2.5	25.3	+59
Total New Capital	$1,816.6	$12,838.5	+17

Cost Indexes as of Now

ENR INDEXES (1913=100), 20-cities' average	Week of Aug. 29* 1957	% Change from Aug. 1 1957	% Change from Aug. 1956
Construction Cost	737.78*	−0.1	+4.7
Building Cost	516.12*	−0.2	+3.2

* Official Monthly Index for September

To convert above indexes to 1926=100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949=100: Divide Construction Cost by 4.770; Building Cost by 3.518



WAGE RATES, 20-cities' average

	Sept. 1957	% Change from Aug. 1957	% Change from Sept. 1956
Common	2.334	0	+6.5
Skilled (average 3 trades)	3.585	+0.03	+4.9
Bricklayers	3.830	+0.08	+3.9
Structural Ironworkers	3.595	0	+6.0
Carpenters r	3.331	+0.2	+5.0
Equipment operators (average three types)	3.221*	+0.3**	+9.1

* August ** July r Revised from July '52 to Aug. '57

MATERIAL PRICES, 20-cities' average

Structural Steel (average 3 mills), per cwt	5.275	0	+5.5
Lumber, 2x4 Fir, per M fbm	115.431	−1.0	−2.8
Lumber, 2x4 Pine, per M fbm	100.967	−0.7	−3.1
Cement, bulk, per bbl	3.929	+0.2	+5.7
Sand, per ton	2.487	−1.6	+3.3
Ready-mixed concrete, per cu yd	13.701	+0.2	+2.4
Gypsum sheathing, ½"x2'x8', per Msf*	63.030	0	+1.6
Fiber board sheathing, ½" sq. ed, per Msf*	71.275	−0.04	+2.5
Mineral wool insulation, 3' batts, per Msf*	70.816	+0.4	−1.0
Crushed stone, 1½", per ton, CL	2.807	+0.4	+0.7
Concrete blocks, sand gravel, 8"x8"x16", each*	.229	+0.4	+2.2

	Aug. 1957	July 1957	Aug. 1956
Brick, common, per M	37.500	−0.5	+1.7
Lime, hydrated finishing, per ton, CL	36.299	0	+8.1
Structural clay tile, 3x12x12", per M, 2,000 up*	179.21	−0.02	+3.3
Vitrified clay sewer pipe, std 12", per ft	1.315	+1.2	+6.0
Concrete sewer pipe, 12", per ft	1.200	+3.3	+9.4

* Delivered, trucklots

ENR INDEX REVIEW

	Construction Cost		Building Cost		Volume	
1956	1913=100	1949=100	1913=100	1949=100	1913=100	1949=100
Sept.	704.91	147.77	500.10	142.16	580	168
Oct.	703.88	147.56	499.54	142.00	729	211
Nov.	704.13	147.61	500.48	142.27	542	157
Dec.	703.82	147.55	500.17	142.18	624	180
1956 Average	692.37	145.14	490.76	139.50	671	194
1957						
Jan.	707.90	148.40	501.96	142.69	504	146
Feb.	710.06	148.85	502.59	142.87	546	158
Mar.	708.64	148.56	501.37	142.52	553	160
Apr.	709.30	148.69	501.37	142.52	564	163
May	715.70	150.04	503.01	142.99	553	160
June	721.36	151.22	504.17	143.32	588	170
July	724.15	151.81	506.62	144.01	587	170
Aug.	738.63	154.84	516.90	146.93	528	153
Sept.	737.78	154.66	516.12	146.71	...	...

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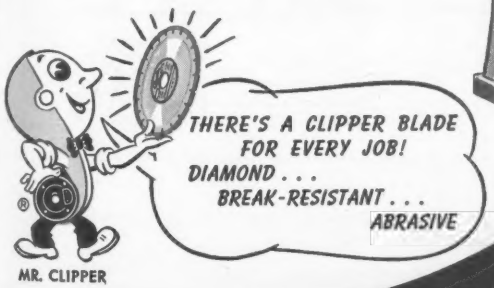

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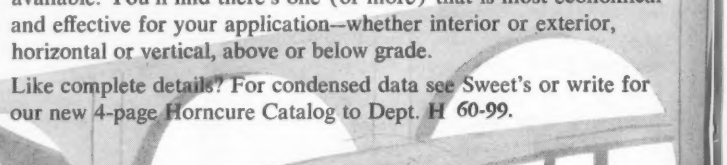

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Private Contracts Up 7% in August

Industrial and commercial building strong in August but drop in public works brings rate under July

On an average weekly basis, August heavy construction contract awards slipped 9% under the July rate, according to ENGINEERING NEWS-RECORD and CONSTRUCTION DAILY figures, despite the strength in private awards.

Total awards for August (a five week month) were $1.8 billion.

With federal contracts plummeting 52% below the July rate and state and municipal off 6% the good showing in private awards was not enough to maintain the steady uptrends in total awards that began in May and lasted through July.

Federal awards totaled $163 million; state and municipal, $792 million. Private industrial building and unclassified work both rose sharply over the July rate. Each posted a gain of 38%.

Two major steel mill contracts, a wood processing plant, a large brewery and a power plant boosted private industrial awards in August.

Commercial building has been quietly catching up to last year's volume. At the end of August, the award total for this year was within 0.1% of the first eight months of 1956. Three office buildings and a large shopping center helped push the month's award total to more than $173 million, the second biggest month for commercial building this year.

Streets and roads added $327 million to contractors' books in August. The weekly rate of highway awards fell 16% behind the July pace. However, more than $2 billion in highway contracts have been let during the first eight months of this year, 31% more than in the January through August period of 1956.

Earthwork, irrigation and drainage activity perked up in August, reaching a total of $102 million. Resolution of the long-standing Niagara Power controversy permitted the Power Authority of the State of New York to award contracts for more than $40 million in generators and turbines. And, both Arizona and Georgia moved ahead with contracts for reservoir and dam work.

Public school construction bolstered the public buildings category (excluding public housing). For the first eight months of the year, nearly $1.6 billion worth of work in the public buildings category has gone to contract, up 13% from last year.

While there were several encouraging notes in the August contract picture, one weak spot—private mass housing—grew even weaker. Contracts for mass housing averaged only $48.3 million a week, down 15% from the July rate—down 62% from August 1956.

Cost Indexes Dip Slightly in August

Changes in building material prices, mostly lumber, and some wage increases brought fractional dips in ENGINEERING NEWS-RECORD's building and construction cost indexes this month.

The construction cost index now is at 737.78 compared with 737.63 a month ago. It is now 4.7% higher than the corresponding week in 1956.

ENR's building cost index now is 516.12; last month it was 516.90. It is 3.2% higher than its last year's value. Both indexes are based on 1913-100.

Labor gained increases only in three cities. New Orleans raised its hourly wage for carpenters to 5 cents; Dallas, 10 cents. San Francisco bricklayers moved up 8½ cents per hour.

(*Continued on page 138*)

Engineering Construction Contracts—August '57

ENGINEERING NEWS-RECORD *reports continental U. S. construction projects of the following minimum costs—waterworks, excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000.

Five Weeks Thousands of Dollars (000 Omitted)

	August, 1957							U. S. Cumulative Eight Months		% Change	Canada August
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1957	1956	'56 to '57	1957
Public Works											
Waterworks	713	5,231	3,262	7,458	5,705	7,399	**29,768**	**246,671**	245,156	+ 0.6	1,272
Sewerage	1,557	5,443	3,798	17,808	6,722	7,012	**42,340**	**376,795**	406,940	− 7	8,838
Bridges	4,202	20,580	12,065	19,676	13,066	6,850	**76,439**	**508,786**	404,940	+26	7,891
Earthwork and waterways	535	45,213	25,136	457	12,841	17,633	**101,815**	**767,404**	518,112	+48	6,931
Streets and roads	18,921	62,840	63,088	65,815	70,155	46,641	**327,460**	**2,160,043**	1,653,918	+31	21,134
Public buildings, residential	1,130	4,861	11,272	18,202	15,519	13,546	**64,530**	**477,169**	217,842	+119	1,117
Other public buildings	17,764	45,650	20,057	26,803	43,945	67,398	**221,617**	**1,561,306**	1,384,901	+13	13,226
Unclassified	3,010	4,496	17,036	14,685	20,689	31,132	**91,048**	**841,672**	753,945	+12	9,361
Total Public	**47,832**	**194,314**	**155,714**	**170,904**	**188,642**	**197,611**	**955,017**	**6,939,846**	**5,585,754**	**+24**	**69,770**
Federal government (included in above classifications)	2,693	10,574	37,407	14,087	44,708	53,708	**163,177**	**1,819,512**	1,185,170	+54	14,245
Private											
Bridges	.....	87	.....	1,227	.....	.....	**1,314**	**3,091**	4,404	−30	.....
Industrial buildings	44,151	41,340	92,160	131,225	39,593	19,466	**367,935**	**2,313,835**	3,787,619	−39	31,931
Mass housing	19,759	78,949	21,246	70,074	39,123	12,162	**241,313**	**2,031,319**	3,971,119	−49	14,500
Commercial buildings	14,640	30,628	11,671	59,300	42,243	14,646	**173,128**	**1,213,889**	1,215,036	− 0.1	13,710
Unclassified	1,467	93	12,961	13,774	30,225	8,233	**66,753**	**338,097**	463,261	−27	.....
Total private	**80,017**	**151,097**	**138,038**	**275,600**	**151,184**	**54,507**	**850,443**	**5,900,231**	**9,441,439**	**−38**	**60,141**
Total Engineering Construction:											
August, 1957—5 weeks	**127,849**	**345,411**	**293,752**	**446,504**	**339,826**	**252,118**	**1,805,460**	.....	.....	....	**129,911**
July, 1957—4 weeks	96,392	371,893	138,757	484,854	292,340	204,837	**1,589,073**	.....	.....	....	119,899
August, 1956—5 weeks	76,153	488,823	185,248	411,392	418,068	248,778	**1,828,462**	.....	.....	....	277,354
Eight Months—1957	**847,058**	**3,028,879**	**1,500,199**	**2,977,243**	**2,365,993**	**2,120,705**	.....	**12,840,077**	.....	**−15**	**1,119,779**
Eight Months—1956	827,423	3,861,023	1,673,740	3,246,077	3,232,971	2,185,959	.....	.....	15,027,193	....	1,657,708
% Change '56 to '57	+2	−22	−10	−8	−27	−3	.....	.....	.....	....	−38

Vitrified Clay Pipe

"it joints like magic"

Here's big news for cost-conscious sewage and waste disposal architects, engineers and contractors. KAUL, for over 50 years a leading manufacturer of vitrified clay products, scoops the field with a completely revolutionary pipe that literally "joints like magic." Appropriately identified as Presto-SEAL, this time and labor-saver affords a completely leak-proof, root-proof and corrosive-proof joint that lasts—not for years . . . not for life . . . but positively FOREVER! It's flexible, regardless of temperature . . . permits a 3° deviation from center line without breaking the seal . . . is tested to withstand the most rigid infiltration-exfiltration requirements. And, get this—KAUL Presto-SEAL pipe is available in a full range of pipe and fitting sizes . . . from 4" to 36", in both standard and extra strength.

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MANUFACTURING COMPANY
TORONTO, OHIO U. S. A.

Material price changes occurr mostly in Douglas fir and southern pi 2x4's. Pittsburgh dipped its price $ per mfbm for Douglas fir; Clevelan and Seattle slipped $2; Detroit, dow $3 and Boston $1, while Philadelphi lowered its price by $12. Denver upp Douglas fir price $1; St. Louis, $2 an Detroit, 75 cents. Southern pine 2x dropped in four cities. New York w down $1; Cleveland $2; Boston, $1, an Philadelphia $8. Detroit upped i southern pine prices $1 per mfbm.

A recent hike in freight rates brough higher prices for Portland cement i three cities: Baltimore, Minneapolis an New York. All were up four cents barrel.

Three Cement Mills Plan To Hold Present Prices

Three cement companies have an nounced that mill prices for cemen will not be raised during the fourt quarter in many areas.

Universal Atlas Cement Co., a sub sidiary of U. S. Steel, will not rais prices in the fourth quarter at any o its 11 plants serving areas in the soutl and east of the Rockies.

Alpha Portland Cement Co. an Lehigh Portland Cement also plan n fourth quarter price changes.

H. A. Sawyer, president of Lone Sta Cement Corp., now feels that it is "un likely" that mill prices of cement wil go up any more this year, except i isolated areas.

Lone Star has issued new prices t reflect freight rate boosts that too effect last week, but these increases ar for the period ending Sept. 30.

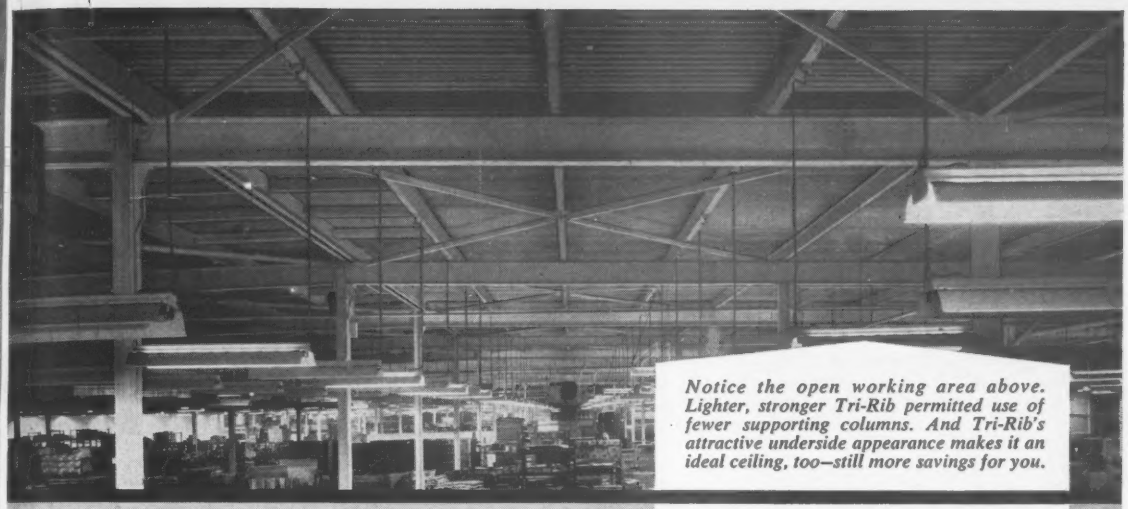
Only one major cement firm, Idea Cement Co. of Denver, has announced plans to boost prices Oct. 1. Extent o the price increase isn't known yet. One other firm, General Portland Cement Co., reportedly still is unde cided on its fourth quarter prices.

Six Banks Join to Provide $15.9 Million Home Loan

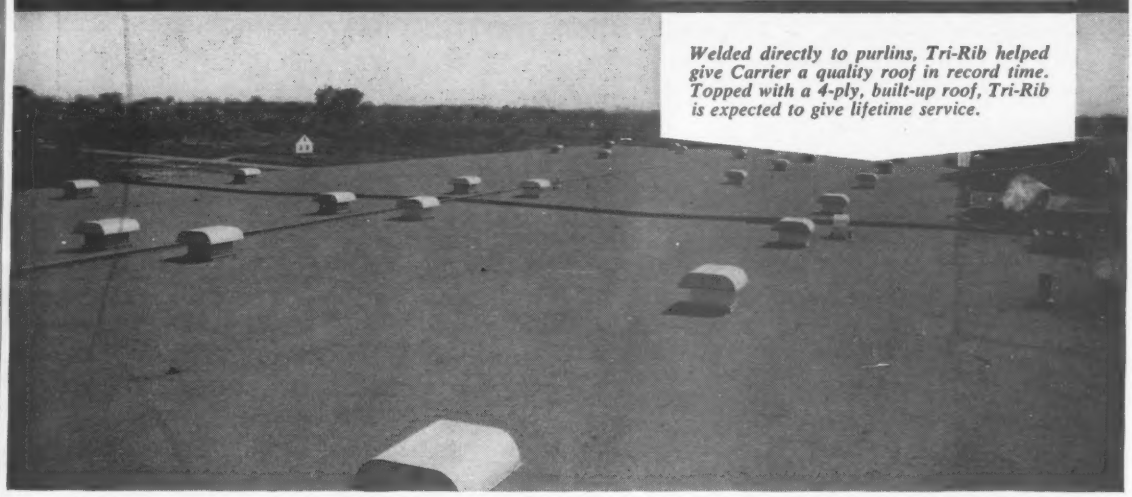
Six banks joined in providing New England's largest single loan for housing at Portsmouth, N. H., Air Force Base The loan of $15.9 million will cove construction costs of the 1,100 uni project for Air Force personnel an their families.

Davison Construction Co., of Man chester, N. H., is the general contractor

Completion time of the project i estimated at two years. The six financial institutions that supplied the construc tion loan will take a 25 year FHA mort gage on the project with the Air Force as mortgagor.

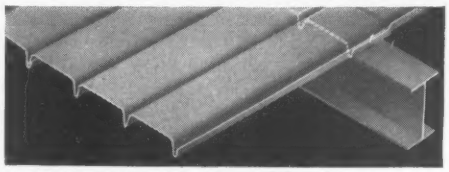


Notice the open working area above. Lighter, stronger Tri-Rib permitted use of fewer supporting columns. And Tri-Rib's attractive underside appearance makes it an ideal ceiling, too—still more savings for you.



Welded directly to purlins, Tri-Rib helped give Carrier a quality roof in record time. Topped with a 4-ply, built-up roof, Tri-Rib is expected to give lifetime service.

Wheeling Tri-Rib Roof Tops *Carrier* Building



Wheeling Tri-Rib Steel Roof Deck is designed in accordance with specifications adopted by A.I.S.I. Light Gauge Cold-Formed Steel Design Manual, 1956 Edition.

If you want a strong, long-lasting, low-cost roof, follow Carrier's excellent example – start with Wheeling Tri-Rib Steel Roof Deck.

Tri-Rib *saves time* because it's quickly installed and welded directly to purlins...*saves steel* because it permits use of lighter supporting structure . . . and *saves money* because it costs less to erect, less to maintain. What's more, Tri-Rib is made of Wheeling's famous corrosion-resistant Cop-R-Loy steel for longer life.

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IMMEDIATE DELIVERY ON ALL STOCKED ITEMS FROM THESE WAREHOUSES: BOSTON, BUFFALO, CHICAGO, COLUMBUS, DETROIT, KANSAS CITY, LOUISVILLE, MADISON, MINNEAPOLIS, NEW ORLEANS, NEW YORK, PHILADELPHIA, RICHMOND, ST. LOUIS ***SALES OFFICES:*** ATLANTA, HOUSTON

Delaware Removes Interest Ceiling on New Bond Issues

Delaware recognized the economic facts of life, mainly that borrowing costs have reached historic highs, and in a special nighttime session its legislature removed the 3% interest rate ceiling placed on bond issues.

The move came after bond experts told Governor Boggs and General Assembly leaders that it would be almost impossible to market bonds paying only 3%. Opponents of the bill still argued, however, that the interest ceiling would force buyers to bid at lower interest levels.

Passage and signing of the measure cleared the path for the sale of $21 million in bonds. Of total, $9 million is earmarked for school construction. Without the funds, school buildings programs would have been seriously delayed.

Booming Population Will Keep Contractors Hustling

California's population continues to boom and the state's construction industry can expect to prosper as a result.

The State Finance Department reported that the estimated population as of July 1 was 14.1 million, a gain of 560,000 over the same date last ye It represented a jump of more th 3.5 million since the 1950 feder census.

The department said there are n indications of a letup in the growt trend and the accompanying need fo more facilities, services and jobs. Th agency said private initiative mus supply the houses, churches, hospital and commercial and industrial struc tures while the state will share in th furnishing of more schools, colleges, in stitutions, roads and parks.

The department predicted that in 1 years California will have a populatio of 20 million.

Construction Markets

Norfolk: An On-the-Spot Report

Public construction through the years has far outweighed private building in Norfolk and Portsmouth, Va.—and this will continue to influence the outlook for those twin naval cities for the remainder of 1957.

The outlook is "fair. Not good, not poor, but fair." That's the way it's summarized by George L. Wadsworth, secretary of the Norfolk Builders and Contractors Exchange, Inc., an organization that keeps close tabs on building for the entire Tidewater Virginia area.

The Navy, long a construction buyer in both cities, has further plans for a multimillion dollar program. Projects have been authorized and funds have been appropriated. But, many of these projects have been held up because of the recently adopted spending limits of the Defense Department, a spokesman for the Fifth Naval District said.

One major item in the Navy's program isn't affected by the spending curb. That's the $15 million new main building for Portsmouth Naval Hospital. Work now is starting.

Private construction for the remainder of this year will total about $15 million, according to estimates made by Mr. Wadsworth.

This does not include a $2.5 million office building for downtown Norfolk. Land has been cleared but the project has been delayed by a financing problem.

There also is the possibility of a sizable construction job in downtown Portsmouth as a result of an August fire that caused extensive damage in a five story hotel building on the principal downtown corner.

Mr. Wadsworth expects the recent move by the federal government in cutting minimum downpayments and increasing the interest rate on FHA insured home loans to act as a tonic. Homebuilding has taken a beating in Norfolk.

The feeling of optimism was echoed by Martin Rosen, president of the Tidewater Association of Home Builders. Mr. Rosen said the government action will bring about "a substantial spurt in lower income housing and definitely accelerate housing in the middle income range."

He felt the increase in the FHA interest rate was significant because it would attract investors. Most bankers and builders throughout the nation disagree (ENR Aug. 29, p. 21.)

In the public works field, local and state projects will supplement the Navy's activity. Slated for the immediate future are two grade separation projects at $1 million each; two junior high schools in the city at $1.5 million each; two Norfolk county schools, totaling $1 million; two Princess Anne county schools, totaling $1 million and two in Portsmouth at slightly less. Norfolk General Hospital has a $5 million addition under construction.

Norfolk, which as been one of the leaders in the nation in slum clearance and urban redevelopment, has two more major redevelopment projects on the fire. The Norfolk Redevelopment and Housing Authority soon will begin to acquire property for the Atlantic City program which will cost about $8 million gross, according to an authority official, Vernon Sawyer.

Within the next few months, Mr Sawyer said, the authority plans to as funds from the Urban Renewal Ad ministration for planning of a $17 mi lion redevelopment project in down town Norfolk. This will provide spac for a variety of structures, including civic center. The civic center will in clude a city hall, court building, publi safety building and jail.

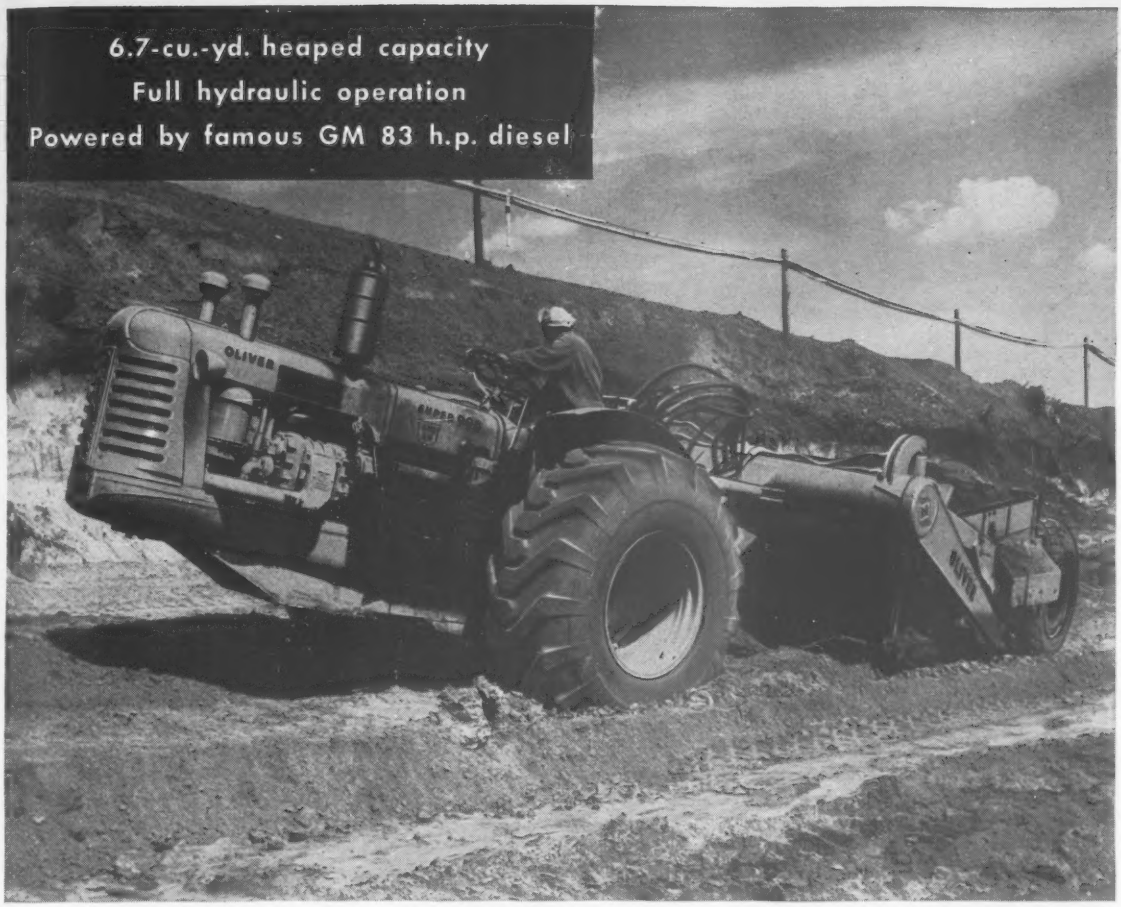
And, Portsmouth—Norfolk's twin—i getting under way on a $1.8 million slum clearance and low rent housing development.

There's a chance that some phase of work may start before the end o the year on the second Norfolk-Ports mouth tunnel.

Sept. 18 has been tagged as a ke day in tunnel planning by Robert Reed Portsmouth member of the Elizabeth River Tunnel Commission, an agency of the Commonwealth of Virginia. On that day, the Portsmouth Court o Hustings will try a suit to determine if the commission can condemn land of the Southern Railway for a right-of way. Also on that day, the commission will receive final estimates on traffic surveys and construction costs. At pres ent, the tunnel is estimated to cost about $16 million.

When the Defense Department lifts its present spending limitations, con tractors in the Norfolk area will feel the effect quickly because of the impact of Navy construction.

Among the major projects is a $1 million headquarters for the Atlantic Fleet at Norfolk Naval Base. Another is $7.5 million slated for improvements at Oceana Jet Base, near Norfolk.



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Now you can use the efficient scraper method on dozens of small jobs...outproduce other types of equipment on all kinds of grading, filling and spreading assignments ...and move quickly from job to job with its perfect road size. No permits needed.

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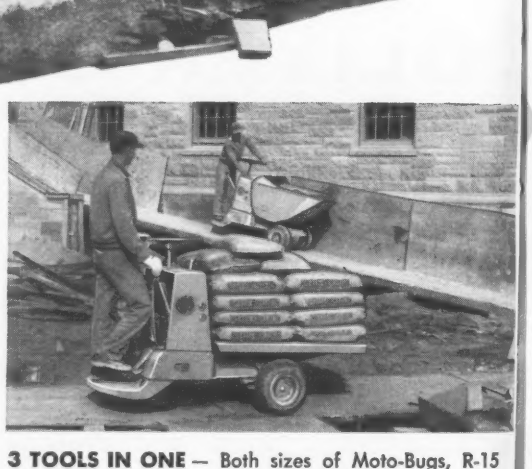

3 TOOLS IN ONE — Both sizes of Moto-Bugs, R-15 (at top of page) and this smaller S-10 give you flat-bed, power wheelbarrow and fork lift versatility. Maneuverable, light-weight S-10 carries 1500 pounds on 4-foot platform, has 10 or 15 cu. ft. hopper body, ½-ton (6-foot) fork lift, all these attachments are quickly interchangeable for diversified material-handling.

KWIK-MIX *multiple-tool* **MOTO-BUG®**

for your jobs

Have you checked recently into the steadily-rising costs of all your small, time-consuming material handling chores? There's a practical answer in *multiple-tool* Moto-Bug. It brings you power wheelbarrow, fork lift, flatbed service all in *one* low-cost, interchangeable unit that hauls, lifts, loads, unloads and stacks all kinds of materials, supplies.

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Hauls 1 ton— Gravity-dump hopper body converts the R-15 Moto-Bug into a big-capacity power wheelbarrow. It carries up to 2000 pounds of any bulk materials in 15 or 18 cubic foot hopper — takes a full batch of concrete from 11-S or 16-S mixer. Change to 4½-foot platform, and you have a heavy-duty 1-ton truck. What's more, there's 780-lbs. of drawbar pull for towing wagons or carts.

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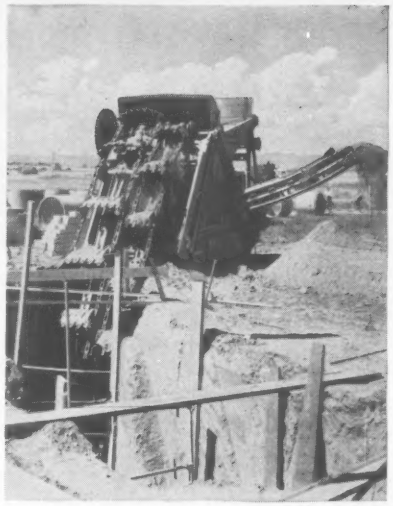

Lo-Bin® for batching or transit-mix

As a batch plant, Johnson Lo-Bin can be arranged with 2, 3 or 4 aggregate compartments. For transit-mix, one compartment can be used for bulk cement. It has 22 or 44 cu. ft. batcher, up to 4 weigh-beams. Batcher rides out beyond end of bin, dumps onto conveyor, or mixer skip (serves 6-S to 28-S mixers). Lo-Bin has 8, 20, 30-ton capacity, is only 7½ to 9½-ft. high — easily charged by tractor loader. Optional: wheels, tires, tow-bar.

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(Koehring Subsidiary)

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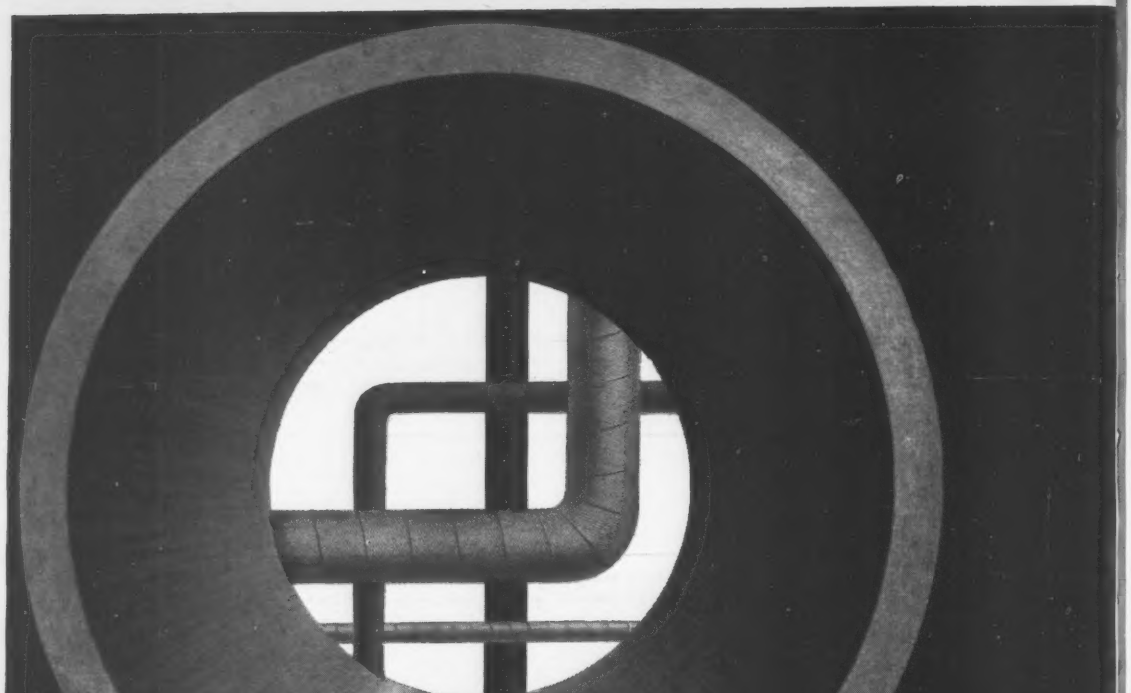

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Teamsters Prepare Defense

Hoffa remains chief candidate for union presidency as executive board winds up Los Angeles meeting

Will the Teamsters name James Hoffa to succeed Dave Beck as president of the International Brotherhood of Teamsters and will the union be able to remain in the AFL-CIO family?

Out of Los Angeles last week came indication that the Teamsters' top brass is thinking in terms of affirmative answers to both questions.

The union's executive board met on the West Coast in a three-day, closed session to prepare its defense to the corruption charges lodged against it by the AFL-CIO ethical practices committee, which last week updated its charges as a result of the Senate investigation of Mr. Hoffa. The union faces the threat of ouster from the AFL-CIO unless it demonstrates to the satisfaction of the federation that it intends to keep its house in order. The union is scheduled to appear before the AFL-CIO committee this week to answer the charges.

No serious opposition appears to have been voiced at the meeting against Mr. Hoffa's candidacy for the union presidency and it looked as if his recent appearance before the McClellan committee had not impaired his status as heir apparent to Mr. Beck. Even union vice president Thomas Hickey, himself a candidate and a frequent foe of Mr. Hoffa, was tactfully avoiding any public quarrel over the Hoffa candidacy.

Mr. Hoffa has been accused by the Senate committee of misusing union funds and of associating in union activities with known racketeers. Principal charge in the latter category is that Mr. Hoffa formed an alliance of mutual benefit with racketeer Johnny Dio in New York to extend his power over the East Coast.

At the conclusion of the meeting, Mr. Beck indicated that the union will attempt the delicate task of assuring the AFL-CIO that it will effect compliance with the federation's ethical practices codes except for the one that would deny union office to a member who uses the Fifth Amendment for his personal protection.

In an apparent effort to convince the AFL-CIO of its sincerity, the union's executive board authorized appointment of a committee to investigate teamster activities in New York City. The McClellan committee claims—but has not established—that seven paper locals were set up irregularly in New York with Johnny Dio's assistance to gain control over Teamsters' Joint Council 16 by assuring election of a Hoffa-backed candidate for council president. A paper local is one chartered with officers but no members, the charter serving as a hunting permit to find members and to vote the local's pretended strength in local or international elections.

The Teamster convention at which Mr. Beck's successor will be elected will open in Miami on Sept. 30. In Los Angeles, Mr. Beck, a defender of the autonomy guaranteed each AFL-CIO affiliate, said election of union officers is "nobody's business but the Teamsters." But the AFL-CIO executive council is expected to inform the union otherwise when it holds its next meeting in New York on Sept. 25.

California Strikes

Shutdown of ready mix plants stalls projects in San Francisco area

Heavy construction in the San Francisco area of California was at a virtual standstill last week with most of the ready mix concrete plants shut down in a strike against the Northern California Ready Mixed Concrete and Materials Association. Meanwhile, Local 36 of the San Francisco Hod Carriers Union struck several members of the Lathing and Plastering Contractors Association, while the Asbestos Workers continued negotiations with the insulating contractors of northern California and the Iron Workers carried on their talks with four chapters of the Associated General Contractors for a statewide pact.

Operating Engineers' Local 3, which has precipitated a strike-lockout of 23 ready mix concrete plants in San Francisco and on the peninsula, is trying to get the plants to close the gap between the manufacturing rate they pay and the construction rate paid by several independent plants and by members of the AGC. Rates are now $2.67½ and $3.30, respectively. The association has offered a 50 cent package, including two 20 cent wage boosts over a two year period.

The Hod Carriers are asking for a 30 cent package wage increase; employers have countered with an offer of a 40 cent, three year package. Asbestos Workers are seeking a 42½ cent pay boost in two steps on top of their present $3.27½ hourly rate; employers have offered 35 cents in two steps. Iron Workers—some 6,000 in seven locals—originally asked for 50 cents in a two year contract. Present rates range from $3.15 for reinforcing iron workers to $3.40 for structural iron workers. Old contract expires Aug. 15 but no strike vote was taken.

Meany Ties Prosperity To Trade Union Goals

In his Labor Day message this week, AFL-CIO President George Meany paid tribute to organized labor's contribution to the nation's prosperity.

Mr. Meany said that the "real secret" of America's economic success lies in the growth of mass purchasing power largely achieved through labor's efforts to obtain higher wages and shorter working hours. The "power of mass consumption," he stated, is essential to mass production, and "high wages" not only keep employers in business but make it possible for them "to earn increased profits."

Singling out inflation as one of the main threats to prosperity, Mr. Meany urges "a full-scale, impartial Congressional investigation of the whole price-profit-wage relationship as it affects the cost of living." He said labor should not be blamed for price increases and accused employers, in some cases, of raising prices "far beyond their increased labor costs." "So far as wages are concerned," he contended, "the facts are crystal clear. If wages go down, purchasing power shrinks, factories are forced to close down and the nation is afflicted with disastrous deflation. If wages stand still, our country and its economy cannot go forward."

Acknowledging the right of capital and management to a "fair share of the rewards of production," he stated that the "function of unions is to obtain for workers a fair share of the wealth they help to produce."

Highway Workers Are Told Of Right To Join a Union

The way was cleared this month for recognition of a union for employees in the Pennsylvania Department of Highways. In a directive to the department's district engineers, Joseph Lawler, secretary of highways, stated that workers have a right to organize and

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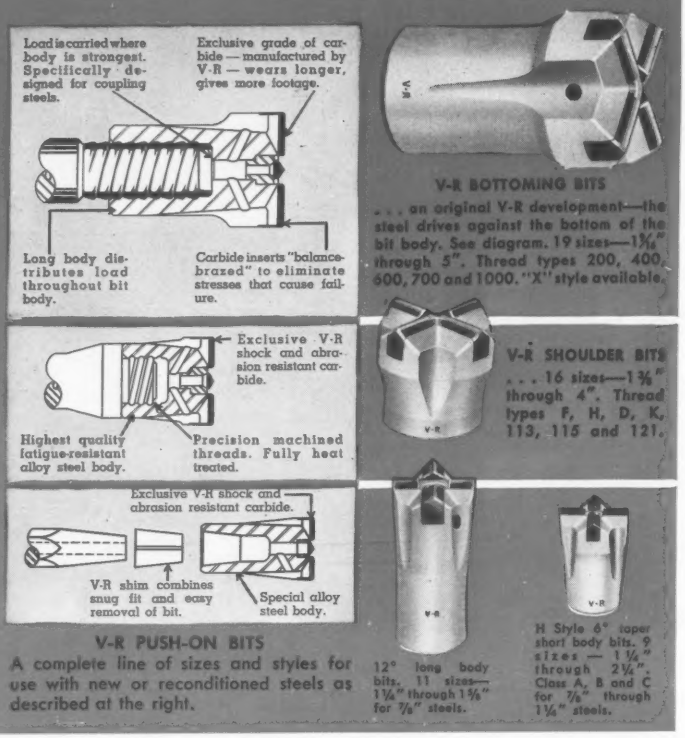
drill more on any job!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. . . an original V-R development—the steel drives against the bottom of the bit body. See diagram. 19 sizes—1⅜" through 5". Thread types 200, 400, 600, 700 and 1000. "X" style available.
Exclusive V-R shock and abrasion resistant carbide.
Highest quality fatigue-resistant alloy steel body.
Precision machined threads. Fully heat treated.
V-R SHOULDER BITS
. . . 16 sizes—1⅜" through 4". Thread types F, H, D, K, 113, 115 and 121.
Exclusive V-R shock and abrasion resistant carbide.
V-R shim combines snug fit and easy removal of bit.
Special alloy steel body.
V-R PUSH-ON BITS
A complete line of sizes and styles for use with new or reconditioned steels as described at the right.
12° long body bits. 11 sizes—1¼" through 1⅝" for ⅞" steels.
H Style 6° taper short body bits. 9 sizes — 1¼" through 2½". Class A, B and C for ⅞" through 1¼" steels.

Wherever there is rock, V-R Bits are building a reputation for fast, low cost drilling. There are good reasons:

Exclusive Carbide Grades. **Since 1930, Vascoloy-Ramet Corporation has been a recognized leader in the manufacture of cemented carbides for severe wear applications. The carbide in V-R Bits is a recent, exclusive development providing exceptional impact and abrasion resistance.**

Precision-Set Blanks. **V-R carbide inserts are perfectly positioned in the bit body, preventing irregular stresses that shorten bit life.**

Heavy-Duty Precision-Ground Bodies. **Exclusive design, special non-fatiguing alloy steel, controlled heat treating, accurate threads and precision grinding produce V-R quality products.**

Use the bits that are beating them all—V-R Bits!

ASK FOR CATALOG
—call your V-R representative or distributor, or write:

M-612R

Vascoloy-Ramet Corporation
SUBSIDIARY OF FANSTEEL METALLURGICAL CORPORATION
808 Market Street • Waukegan, Ill.

said department supervisors would be expected to provide reasonable cooperation with recognized union representatives.

Through the Pennsylvania State Employes Council, the American Federation of State, County and Municipal Employes, AFL-CIO, claims to represent more than 5,000 highway workers in 65 counties. Employee representatives of the Pennsylvania Turnpike are currently meeting with the council in an effort to organize toll takers, maintenance and tunnel workers on the turnpike.

Mr. Lawler's action is in compliance with Gov. Leader's assurance to state employees last May that they have the right to organize for bargaining purposes.

New York Plumbers Sign An Area-Wide Agreement

A new area-wide labor contract has been negotiated by the Plumbing Contractors Association of the City of New York, Long Island and Westchester County, Inc. and five locals of the plumbers union.

The agreement, which covers 10,000 union members in seven counties in and around New York City, provides for uniform wages and working conditions. It also grants a 60 cent hourly wage increase spread over the next three years.

Fringe benefits will also be increased 2% commencing with the second year of the contract.

Last year's area-wide agreement—which was the first for the negotiating groups—expired June 30, but the plumbers in all counties continued to work without a contract under a "gentlemen's agreement."

Labor Briefs . . .

• **Public works**—Recent prevailing wage activity at the state level includes adoption in Missouri of a prevailing wage law applicable to state and local public works projects; an attorney general's ruling that the Indiana law is enforceable by county prosecutors and not the State Labor Division; and reexamination of prevailing wage schedules that may lead to new minimum rates in New Mexico on Oct. 1.

• **Apprenticeship**—An increasing number of military deferments for apprentices are reported by the U. S. Labor Department's Bureau of Appreticeship and Training. Apprentice deferments, authorized by an Executive Order to permit completion of a program in which enrolled, numbered 4,353 as of June 30.

he's working for you

THIS FELLOW IS TRAINED IN YOUR BUSINESS. His main duty is to travel the country — and world — penetrating the plants, laboratories and management councils . . . reporting back to you every significant innovation in technology, selling tactics, management strategy. He functions as your all-seeing, all-hearing, all-reporting business communications system.

THE MAN WE MEAN IS A COMPOSITE of the editorial staff of this magazine. For, obviously, no one individual could ever accomplish such a vast business news job. It's the result of many qualified men of diversified and specialized talents.

AND, THERE'S ANOTHER SIDE TO THIS "COMPOSITE MAN," another complete news service which complements the editorial section of this magazine — the advertising pages. It's been said that in a business publication the editorial pages tell "how they do it" — "they" being all the industry's front line of innovators and improvers — and the advertising pages tell "with what." Each issue unfolds an industrial exposition before you — giving a ready panorama of up-to-date tools, materials, equipment.

SUCH A "MAN" IS ON YOUR PAYROLL. Be sure to "listen" regularly and carefully to the practical business information he gathers.

McGRAW-HILL PUBLICATIONS

OFFICIAL PROPOSALS

Bids: September 19, 1957

Tuscarora River Bank Protection

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Building Law and Highway Law, sealed proposals will be received until 10:30 A.M., D.S.T., on September 19, 1957 by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, New York, for:

Contract FC 57-3 for Tuscarora River Bank Protection, Addison Flood Control Project, Addison, Steuben County, New York. Engineer's Estimate for Contract FC 57-3 is $21,100.00.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, Gov. A. E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, New York.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract FC 57-3 may be examined and obtained at the office of Mr. James H. Thomas, District Engineer, 30 West Main Street, Hornell, New York.

The deposit for Plans and Proposal Forms for Contract FC 57-3 is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Proposals for FC 57-3 must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" in the amount of $1,100.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Building Law and to the Highway Law as set forth in "Instructions to Bidders" in the contract specifications.

The right is reserved to reject any and all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4960) will be received at Anchorage, Alaska, until 1:00 p.m. Alaska Standard Time, October 3, 1957, for furnishing labor and materials for: Relocating Part of Eklutna-Palmer 115-Kilovolt Transmission Line, Eklutna Project, Alaska. Location near Palmer, Alaska. Principal items are: Furnishing and constructing 74 pole structures; Furnishing and stringing 9 miles-three 392,500 circular mil, ACSR conductors; and other work. Completion time 300 days. For particulars, address Bureau of Reclamation, Pouch No. 5, Anchorage, Alaska; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4961) will be received at Kennewick, Washington until October 8, 1957, for furnishing labor and materials for completion of Roza Powerplant and Switchyard, Yakima Project, Washington. Location near Yakima, Washington. Principal items are lump sum installing nonembedded turbine parts and testing one 18,000-hp hydraulic turbine; furnishing and installing heating and ventilating system in powerplant; 6,700 pounds furnishing and installing steel pipe, valves, and fitting; and other work. Completion time 200 days. For particular, address Bureau of Reclamation, P. O. Box 516, Kennewick, Washington; P. O. Box 937, Boise, Idaho; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

(Continued on the following page)

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.10 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, P.O. Box 12, New York 36, N. Y.

Bids: September 19, 1957.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 19th day of September 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON District Engineer, 353 Broadway, Albany, N. Y.						
Albany	FISH 57-17 FIC 57-12	Interstate Route 502 (Albany to Latham) Proj. I-IG-1119(9)	5.52 (8.68) (Acc.)	9" Cem. Conc. Pavt. 2 @ 36'=5.42 Miles; 9" Cem. Conc. Pavt. Var. Width=7.07 Miles; Asph. Conc.=1.51 Miles; Misc. Work=0.20 Mile; 12 Hwy. Sep. Struct. 204.3', 216.0', 184.5' 184.5', 193.1', 138.1', 138.1', 155.4', 155.4', 172.4', 172.8', & 193.1'; 2 RR Sep. St. 181.3, & 181.3'	$625,000 Plans $100	$11,390,000
DISTRICT No. 2, LACY KETCHUM, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Herkimer & Montgomery (Rte. 5)	WSR 57-9	Little Falls-East Creek, S.H. 456—Truck Weigh Station No. 5 Palatine Br.-Fonda, Pt. 2, S.H. 5125—Truck Weigh Station No. 6	0.06	9" Cem. Conc. Pavt.=0.04 Mi. Misc. Work=0.02 Mi.	$220 Plans $10	$4,000
DISTRICT No. 3, WM ROBINSON District Engineer, 353 Washington St., Syracuse, N. Y.						
Onondaga	FIC 57-11P FIRC 57-159P	Interstate Route 505, City of Syracuse: Oswego Blvd. Syracuse-Mattydale, S.H. 54-3; Phoenix-Syracuse, S.H. 5274. Proj. I-IG-463(17)	1.02 (2.16) (Acc.)	Asph. Conc., Ty 2A=3.07 Mi. Misc. Work=0.11 Mi.	$220,000 Plans $50	$3,979,000
Onondaga	FISH 57-18	Interstate Route 505 (Nedrow to Lafayette Sect.), FISH 56-12 (Webb Hollow Road Underpass) Proj. I-397(6)	0.06 (0.39) (Acc.)	9" Cem. Conc. Pavt. 2 @ 24'=0.06 Mi. Graded Grav. Bit. DST=0.39 Mi.	$14,000 Plans $10	$265,000
Tompkins (Rte. 38)	B.C. 57-165	Freeville-Groton, S.H. 926	4.47	Asphalt Concrete	$11,000 Plans $10	$190,000
Wayne (Rte. 104A)	FARC 57-155	Ped Creek-Fair Haven, S. H. 1185 Proj. F-535(2)	0.64	Asph. Conc.=0.56 Mi.; Misc. Work=p.08 Mi.; Br. 1, Twin Closed Box 23.3'; Br. 2, Twin Closed Box 23.1'	$14,000 Plans $10	$268,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Monroe	FAC 57-10	Rochester City: Mt. Read Blvd. (Buffalo Road to Maple St.) Proj. U-1093(3)	0.38 (0.16) (Acc.)	Asphalt Concrete, Type 2A	$16,500 Plans $15	$297,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, 65 Court St., Buffalo, N. Y.						
Erie (Rte. 5)	R.C. 57-164	Lackawanna City-South, S.H. 5071 Lake Shore-Lackawanna City, S.H. 5019	0.59	Demolition	$1,600 Plans $10	$29,000
Erie (Rte. 5)	FAC 57-4	City of Lackawanna; Arterial Route, Fuhrmann Blvd-Hamburg Turnpike Viaduct (Fox St.-Ridge Rd.) Demolition Cont. #2. Proj. U-750(10)	0.34	Demolition	$7,000 Plans $10	$133,000
Niagara (Rte. 384, 265)	T.C. 57-6	City of North Tonawanda: River Road Arterial (FAC 56-12)	2.06	Traffic Signal System	$1,900 Plans $10	$34,000
DISTRICT No. 6, J. H. THOMAS, District Engineer, 30 West Main St., Hornell, N. Y.						
Schuyler	FASS 57-12	Montour Falls-Townsend (C.R. No. 398) Proj. S-446(1)	1.60	Top Crse. Bit. Macadam, Type I	$16,000 Plans $10	$293,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee St., Watertown, N. Y.						%%
St. Lawrence (Rte. 11)	FARC 57-156	County Line-Gouverneur, S.H. 5287 Proj. F-476(7)	4.42	Asphalt Concrete	$47,000 Plans $15	$860,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Rockland	PIP 57-2	Palisades Interstate Parkway Sect. 2 (Rte. 303-Rte. 59A)	5.19 (4.24) (Acc.)	Cem. Conc. Pavt. 2 @ 24'=8.64 Mi. Asph. Conc.=0.58 Mi. TC Graded Grav.=0.21 Mi.	$150,000 Plans $50	$2,794,000
Rockland (Rte. 17)	FARC 57-157	New Jersey State Line-Ramapo, S.H. 1844 Proj. F-405(7)	1.54	Asphalt Concrete	$22,000 Plans $10	$414,000
DISTRICT No. 9, J. C. FEDERICK, District Engineer, 71 Frederick St., Binghamton, N. Y.						
Otsego (Rte. 7)	FARC 57-121	Wells Bridge-Otego, S.H. 5153 Proj. F-628(6)	3.53	Asphalt Concrete Widen Exist. RC Beam Br. 30' Widen Exist. RC Beam Br. 36'	$37,000 Plans $15	$670,000
Otsego	C.R. 57-3	Milford Center-Milford, S.H. 674	....	Removal of Human Remains	$125 Plans $10	$2,400
DISTRICT No. 10, M. E. GOUL, District Engineer, Little East Neck Rd., Babylon, L. I., N. Y.						
Nassau (Rte. 106)	FARC 57-167	Jericho-Oyster Bay, S.H. 9021 Proj US-500(1)	1.77	Asphalt Conc.=1.72 Mi. Misc. Work=0.05 Mi.	$30,000 Plans $15	$526,000
Suffolk (Rte. 110)	FARC 57-161	Huntington-Amityville, Pt. 1, S.H. 794 Proj. U-297(4)	2.46	Asphalt Concrete=2.30 Mi. Misc. Work=0.16 Mi.	$82,000 Plans $25	$1,496,000
Suffolk (Rte. 27A)	FERC 57-160	Bayshore-Brookhaven Town Line, S.H. 5301 (Montauk Highway) Proj. ER-42(1)	0.12	Asphalt Concrete=0.03 Mi.; Misc. Work=0.09 Mi. 8'x4' Closed Box Culvert	$3,500 Plans $10	$62,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: September 19, 1957

Plating Lock Chamber & Portions of Lower Approach Walls

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Canal Law and Highway Law, sealed proposals will be received, until 10:30 A.M., D.S.T., on September 19, 1957 by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract M 57-16 for Plating Lock Chamber and Portions of Lower Approach Walls with W. I. Plates, Installing New Buffer Beam and Buffer Beam Recesses & Misc. Repairs at Lock #9, Erie Canal, Town of Glenville, Schenectady County, New York. Engineer's Estimate for Contract M 57-16 is $288,000.00.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, Gov. A. E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, New York.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract M 57-16 may be examined and obtained at the office of Mr. G. L. Nickerson, District Engineer, 353 Broadway, Albany 1, New York.

The deposit for Plans and Proposal Forms for Contract M 57-16 is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Proposals for M 57-16 must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Eact proposal must be accompanied by draft or certificate check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" in the amount of $15,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Canal Law and to the Highway Law as set forth in "Instructions to Bidders" in the contract specifications. The right is reserved o reject any and all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: September 17, 1957.

Sinking Wells and Pumping Groundwater—Contract 463

SEALED BIDS will be received by the Board of Water Supply at its offices, thirteenth floor, 120 Wall Street, New York City until 11:00 A.M. Eastern Daylight Saving Time (10:00 A.M. Eastern Standard Time) on Tuesday, September 17, 1957, for Contract 463, for sinking and developing wells and pumping groundwater at the site of the proposed Cannonsville dam, in the Town of Deposit, Delaware County, New York. The principal features of the work to be done under this contract are the sinking of three or more pumping wells through the overburden and into bed rock, developing these wells, and equipping them with deep well turbine type pumps and discharge measuring devices; the sinking of a number of observation wells to various depths in the overburden and the developing of these wells; the measuring and recording of groundwater elevations in the pumping and observation wells, and controlled pumping from the pumping wells for such continuous periods as ordered, all as set forth in the specifications.

Pamphlets of the contract containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312 at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply; BETTY COHEN, Acting Secretary.

OFFICIAL PROPOSALS

Bids: September 19, 1957

Construction of Water Transmission Main

Notice is hereby given that sealed bids will be received in accordance with the law by the Erie County Water Authority until ten o'clock A.M. Daylight Saving Time on the nineteenth day of September, 1957 at the office of the Authority, 338 Ellicott Square Building, Buffalo 3, New York, for furnishing materials and performing the labor for constructing a twenty-four (24") inch diameter water transmission main in the Town of Cheektowaga, Erie County, New York, all in accordance with plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be obtained either from the Erie County Water Authority or from the Consulting Engineers upon deposit of Twenty-Five ($25.00) Dollars, which sum will be refunded upon return of the plans and specifications in good condition within ten (10) days after the date on which bids are received or else the entire deposit will be forfeited.

The work to be done includes all materials and labor, tools, plant and equipment necessary for constructing, installing, testing and completing, ready for operation, approximately eight thousand four hundred (8,400') feet of twenty-four (24") inch diameter water transmission main with connections to existing mains, valves, air relief and blow-off facilities, manholes and other accessories and appurtenances.

Each proposal must be accompanied by a certified check payable to the Erie County Water Authority or a bid bond to the favor of the Authority from a reliable surety company authorized to do business in the State of New York and satisfactory to the Authority, in amount equal to ten (10%) percent of the proposal. The certified check will be retained to pay for any damage or loss to the Authority, or the liability bond will accrue, in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

The Authority reserves the right to consider bids for thirty (30) days after their receipt before awarding any contract and the right is reserved to accept any bid or to reject any or all of them.

ERIE COUNTY WATER AUTHORITY
By: WILLIAM J. CARNEY
Secretary

Buck, Seifert and Jost
Consulting Engineers
Dated: August 29, 1957

Bids: September 24, 1957

Contract BP-160.011

THE PORT OF NEW YORK AUTHORITY
BROOKLYN-PORT AUTHORITY PIERS
NEW PIER 10 DREDGING

Sealed proposals for dredging for Pier 10 to be constructed at Atlantic Basin, Brooklyn-Port Authority Piers, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, September 24, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, September 5, 1957

OFFICIAL PROPOSALS

Bids: September 12, 1957

Soil Explorations and Foundation Investigations

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m. Advanced Eastern Standard Time, on September 12, 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON INTERSTATE ROUTE 505, BINGHAMTON TO PENNSYLVANIA STATE LINE, PROJECT 1-1127(3), BROOME COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. FA-SM-107.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York
(b) Mr. Joseph C. Federick, District Engineer, New York State Department of Public Works, 71 Frederick Street, Binghamton, New York
(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit.

The Engineer's Estimate of cost for this work is $40,000.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF
PUBLIC WORKS

Bids: September 24, 1957

Contract LGA-340.001

THE PORT OF NEW YORK AUTHORITY
LA GUARDIA AIRPORT
Storm Water Diversion Sewer

Sealed proposals for the construction of a storm water diversion sewer at La Guardia Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, September 24, 1957 at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, September 5, 1957

OFFICIAL PROPOSALS

Bids: September 24, 1957

For the Construction of the Plattsburgh and Kents Falls Substations Near Plattsburgh, Clinton County, New York

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
SPECIFICATION NO. PA-6-40
CONTRACT NO. T3

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of the Plattsburgh Substation and the Kents Falls Substation, both near Plattsburgh, Clinton County, New York, until 10:30 A.M. Eastern Daylight Savings Time on the 24th day of September, 1957, at the Authority's office, 18th floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

The work includes but is not limited to the installation of the following Authority furnished equipment consisting of structural steel members for the Substations, transformers, power circuit breakers, disconnecting switches, lightning arresters, carrier current equipment, instrument transformers, insulator assemblies and bus supports, metalclad switchgear, motor control center, static capacitors, control boards and appurtenances, control battery and appurtenances and an emergency generator set.

The work also includes but is not limited to the furnishing and installation of all foundations required by the work of the contract, the complete landscaping of the substation areas at Plattsburgh and Kents Falls, and the furnishing and installation of a one story brick and concrete control house at Plattsburgh Substation, all in accordance with the requirement of the Specifications.

The work shall be completed on or before September 1, 1958.

Plans, Specifications and Proposal Forms may be obtained only from the Power Authority of the State of New York, the Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Twenty-Five ($25.00) dollars for initial set of Contract Documents and Fifteen ($15.00) dollars for each additional set, no part of which will be refunded. Two sets must be returned with each bid.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, for the inspection by prospective bidders.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than twenty (20) percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

U. S. Government

On or about September 5, 1957, bidding material for Construction (Except Elevators and Escalators) Old Age and Survivors Insurance Building, Baltimore, Maryland, will be available for distribution to general contractors. Applications from general contractors interested in bidding on this work, for not to exceed three sets of drawings and specifications, should be filed promptly with this office and the bidding material will be forwarded as soon as available. Bids will be opened on the date named in the Bidding Forms, which will be about six weeks after the bidding material is available for distribution. Bidding material will be available at Room No. 1304, General Services Building, 19th and F Streets, N.W., Washington 25, D. C., Phone Executive 3-4900, Extension 2397. Commissioner of Public Buildings, General Services Administration.

Sealed bids for construction of the Classroom and Laboratory Building, Gallaudet College, Washington, D. C., will be received until 2:00 PM EDT, Sept. 26, 1957 in Rm. 7100 GSA Regional Office Bldg., 7th & D Sts., S.W., Washington, D. C., and then publicly opened in Rm. 7100. Contractors interested in bidding on the entire project may obtain bidding material from Public Buildings Service, Rm. 1304 GSA Bldg., 19th & F Sts., N.W., Washington, D. C., Phone: EXecutive 3-4900, Ext. 2397. Commissioner of Public Buildings, General Services Administration.

OFFICIAL PROPOSALS

Bids: October 2, 1957

Sewage Treatment Plant

Sealed proposals will be received at the residence of the Borough Secretary, 213 North Market Street, Elizabethtown, Lancaster County, Pennsylvania, until 7:00 P.M., Eastern Daylight Saving Time, October 2, 1957, for furnishing all necessary labor, materials and equipment, and performing all work for the Contracts noted below, and will be publicly opened and read shortly thereafter, the same day, at the Borough Fire Hall.

Separate proposals will be received upon two (2) parts of the Project as hereinafter indicated. Each proposal shall be accompanied by a certified check or bid bond in an amount not less than ten percent of the bid total, all in accordance with the provisions contained in the Contract Documents.

Copies of the Contract Documents, including Drawings and Specifications may be seen at Room 205 of the office of Gannett Fleming Corddry & Carpenter, Inc., Engineers, 600 North Second Street, Harrisburg, Pennsylvania, from whom they may also be obtained, not to exceed two (2) sets of any particular Contract to a prospective Bidder, upon deposit of the indicated amounts for each set:

Contract Three — CONSTRUCTION OF ALTERATIONS AND ADDITIONS TO A SEWAGE TREATMENT PLANT $25.00

Contract Four — ELECTRICAL WORK IN CONNECTION WITH CONSTRUCTION OF ALTERATIONS AND ADDITIONS TO A SEWAGE TREATMENT PLANT. $20.00

Full refund will be made (only to actual bidders on the prime Contracts noted above) for return of one (1), no more, of a particular Contract, in good condition within fifteen (15) calendar days after closing date for the receipt of bids; refund for return of all other sets in good condition within the same period will be fifty (50) per cent of deposit. No refund of deposit will be made for Contract Documents returned later than fifteen (15) calendar days after date of receipt of bids. Gannett Fleming Corddry & Carpenter, Inc., Engineers

600 North Second Street,
Harrisburg, Pennsylvania
J. W. Brown, Secretary
Borough of Elizabethtown,
Lancaster County,
Pennsylvania

Bids: September 24, 1957

Contract LGA-320.003

THE PORT OF NEW YORK AUTHORITY
LA GUARDIA AIRPORT
AIRCRAFT AND VEHICULAR PARKING AREAS

Sealed proposals for the construction of paving and the furnishing and installation of utilities for aircraft and vehicular parking areas at La Guardia Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, September 24, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, September 5, 1957

OFFICIAL PROPOSALS

Prequalification Date: September 13, 1957.

Board of Education Bureau of Construction

Notice Re: Prequalification Forms f
Contractors
APPROVED AS TO FOR
Acting Corp. Couns

NOTICE IS HEREBY GIVEN THAT
The Superintendent of School Building
Bureau of Construction, 4th Floor, Roo
407, 42-15 Crescent Street, L.I.C., New Yor
will receive applications for prequalificatio
of bidders from Contractors whom may wis
to submit bids for the proposed hereinafte
specified contracts as follows:
General Construction of Playground inclu
ing Plumbing and Drainage.
Borough of Manhattan
P. S. 75, Riverside Drive between West 95t
and West 96th Streets.
Prequalification application forms will ha
to be secured from and must be submitte
to the Superintendent of School Building
Bureau of Construction, 4th Floor, Roo
407, 42-15 Crescent Street, Long Island Cit
1, New York.
Bids when advertised will be received fro
prequalified bidders only.
Time for submitting prequalification appl
cations by contractors will expire on Fri
day, September 13, 1957.
WILLIAM H. PORREALE
Superintendent of School Buildings,
Design and Construction
Dated: August 27, 1957

U. S. Government

Sealed bids will be received in the office o
the Engineering and Construction Director
Panama Canal Company, Balboa Heights
Canal Zone, until 10:00 AM October 2, 195
and at that time will be publicly opene
for the following: Excavation in the dr
of approximately 250,000 cubic yards o
material, and the drilling of approximatel
200,000 L.F. of blast holes, and the use o
approximately 400,000 pounds of explosive
to break up material which will be exca
vated and disposed of by Panama Cana
Company. Bid data, plans, and specifica
tions are available for examination in th
office of Chief, Procurement Division, Pan
ama Canal Company, 21 West St., N. Y.
N. Y. Telephone BO 9-5380, extension 5
Sets of data can be obtained upon payme
to this office of $25 deposit which will b
refunded when data are returned. Refer
ence: Serial No. PC-58-8.

Engineering News-Record

Reaches Your Local Contractors

Its distribution among the contractors of any one state is in proportion to the number of contractors situated in that state. The Official Proposal Columns of *Engineering News-Record* offer precisely the same efficient service to municipalities, counties, state and federal departments in every section of the United States.

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Gunite Superintendent—Wanted immediately. Middle Atlantic States. State age, experience, availability, salary desired. P-4640, Engineering News-Record.

Engineer-Gunite, wanted immediately, must know estimating, take complete charge of all gunite operations. Executive position ultimately available. P-5355, Engineering News-Record.

Beginning Civil Engineer—Recent graduate. Mount Clemens, Michigan. Near Lake St. Clair. 20 miles Northeast of Detroit. Annual salary $5,122-$5,902. P-5509, Engineering News-Record.

Civil Engineers, Florida—Expanding consulting office on middle east coast of Florida has opening for professional grade field and office engineers experienced in municipal work, including utilities. Write complete qualifications to: Alton A. Register and Associates, Engineers, 204 Professional Building, Fort Pierce, Florida.

Engineers for municipal and industrial water supply, sewerage and treatment projects. Opportunities for permanent connection with long established firm of consulting engineers in mid-west. Both E.I.T.'s and engineers considered. Full information and references in first letter requested. P-5889, Engineering News-Record.

Structural and civil engineer with bridge design and highway experience. General consulting practice. Can lead to associate status. Man with well-rounded ability and interest takes precedence over highly specializied individual. Location: Central New Hampshire. P-5965, Engineering News-Record.

Engineer, Electrical, Civil, or Mechanical for Industrial concern in Northeastern N. C., employing 700. For general engineering (analysis, layout, design and follow-up) in highly mechanized and automated production division of expanding national organization. Two to ten years engineering experience desired. Starting salary $425—$650 per month, depending upon qualifications. Apply to: P-5943, Engineering News-Record.

Northern New Jersey Construction Co. has an opening in its Estimating Department. Must have previous experience in estimating sewer lines, earth moving, and road work. Send resume salary requirements. P-5818, Engineering News-Record.

The State of New Jersey has urgent need for qualified civil engineers with experience or interest in hydraulic or hydrographic engineering. Positions covered by Civil Service; offer excellent promotional opportunities; attractive retirement plan. Starting salaries range from $4740 to $6660 per annum depending upon qualification. Write Dept. Conservation & Economic Development, Div. Water Policy & Supply, 520 East State St., Trenton, N. J.

Inspectors—Civil, Mach & Electrical. Overseas Airbase Construction. Please send detailed resume to: P-5463, Engineering News-Record.

Building Estimator Wanted—experienced in Quantity Work who might be moving to Florida and interested in working in the Fort Lauderdale area. Send resume to P-6044, Engineering News-Record. Stating experience, references & salary desired.

Estimators—General Construction. Arch., Struct. & Site-Civil. Quantity take-off & pricing. All replies confidential. Write or call Mr. Levy, Builders Estimating Service, 120 Greenwich St., N. Y. 6. REctor 2-4187.

Field Superintendent—excellent opportunity with internationally known Architectural-Engineering firm for man to act as architect's representative on major Boston area project. Must be capable of dealing with top level client personnel. Experience in construction of major commercial or industrial buildings required. Write, giving experience, background, and salary requirements to P-6036, Engineering News-Record.

Wanted—General Superintendent for Highway Construction, Dirt Moving and Concrete Paving. Phone Cleveland, Ohio, WYoming 1-2067 after 8 P.M.

Inspectors—Concrete, Soils & Asphalt. Field, Lab., & Plant. Also Material Engineer & Party Chiefs. Overseas Airbase. Mild Climate. P-6033, Engineering News-Record.

Sanitary Engineers and designers. Permanent positions. Southern Connecticut. Interesting work. Send resume of experience to P-6039, Engineering News-Record.

(Continued on page 153)

EMPLOYMENT OPPORTUNITIES

NATIONAL COVERAGE

The Advertisements in this section include all employment opportunities—executive, management, technical selling, office, skilled, manual, etc.

Positions Vacant
Positions Wanted
Part Time Work
Civil Service Opportunities . . .
Selling Opportunities Wanted
Selling Opportunities Offered
Employment Agencies
Employment Services
Labor Bureaus

DISPLAYED ——RATES—— **UNDISPLAYED**

The advertising rate is $31.80 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

$2.10 per line, minimum 3 lines. To figure payment count 5 average words as a line.
Position Wanted ads are ½ of above.
Box Numbers—counts as 1 line.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.
Not subject to Agency Commission.

Send NEW ADS or inquiries to Classified Adv Div of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36, N. Y. Sept. 19th Issue Closes Sept. 9th

STRUCTURAL

ENGINEERS
DESIGNERS
DRAFTSMEN

to work on

Highways, Bridges & Expressways

Attractive salaries,
fringe benefits, steady advancement.

Air conditioned offices.

EDWARDS, KELCEY and BECK
1809 WALNUT STREET
PHILADELPHIA 3, PENNA.

ESTIMATORS

General construction
for
commercial and industrial projects.
Excellent salaries.
Opportunity and employee benefits.

Contact Chief Estimator
LURIA CONSTRUCTION CORPORATION
1745 Eaton Ave., Bethlehem, Pennsylvania

DEPARTMENT HEAD for BRIDGE DESIGN

Established firm with a backlog of bridge work needs Department Head. Midwest location, three state operation. Five figured salary. Many fringe benefits. Answer

P-5990—Engineering News-Record
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

When Answering
BOX NUMBERS . . .

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

ENGINEERS

Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical and foundation engineers for interesting work on large dams, powerplants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

HIGHWAY & BRIDGE ENGINEERS

Well established Consulting Engineer has immediate openings for engineers experienced in Highway and Bridge design and construction. Permanent positions. Liberal Employee benefits. Salaries commensurate with education and experience. Send complete resume including salary requirements and availability.

WILLIAM H. McFARLAND
ENGINEER
333 Front Street Binghamton, New York

ASSISTANT PLANT ENGINEER

Nationally known northern New Jersey electronics laboratory has a current opening for an assistant plant engineer. To estimate and design building construction, ventilation, electrical and mechanical projects. Experience in air conditioning highly desirable. Desire man with minimum of 10 years' experience and B.S. degree. Must be U. S. citizen. Excellent salary and liberal benefit program. Suburban location convenient to Metropolitan New York.

P-5880—Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

BRIDGE FLOORING SALES MANAGER

For headquarters in New York City. To act as Sales Manager for Greulich 4-way Bridge Floor Division of Kerrigan Iron Works, Inc. All engineering and sales estimates prepared at home office. Flooring highly acceptable and competitive, distributed nation-wide. State previous experience and salary required.

KERRIGAN IRON WORKS, INC.
General Sales Office:
274 Madison Ave., New York, N. Y.

STRUCTURAL
ENGINEERS
DESIGNERS
DRAFTSMEN

Prefer several years or more experience in any of these fields:

BRIDGES

BUILDINGS
EXPRESSWAYS
HYDRO PROJECTS
TEST FACILITIES*

Will consider lesser experience with good educational background, including several recent graduates to round out a planned expansion program. Occasional openings for combination field men. These are permanent additions to our regular staffs.

We are professional engineers engaged primarily in design which covers a wide scope of practice. The variety and unusual character—for example, the proposed world's largest bridge project—offer excellent opportunity for professional development and advancement.

Immediate openings in our St. Louis general offices and occasionally in our San Francisco branch office. Confidential interviews can also be obtained at Washington, D.C., and Portland, Oregon.

Paid vacation, sick leave, holiday, overtime. Excellent Employee Benefits Plan provides retirement income plus life and disability insurance. Blue Cross. Moving allowance.

Please write fully, including salary data, to

SVERDRUP & PARCEL, Inc.
ENGINEERS — ARCHITECTS
915 Olive St. Louis 1, Mo.

*We are designers of the technical facilities for the Arnold Engineering Development Center, operated by our subsidiary, ARO, Inc.

Highway & Bridge Engineers Designers & Draftsmen

Career opportunities for men interested in professional recognition.
Excellent working conditions and employee benefits including liberal retirement program.
Openings in Pennsylvania, Maryland, Mississippi, Ohio & West Virginia.

Air Mail Resume to R. L. SHAW, *Personnel Director*

MICHAEL BAKER, Jr., INC.
BAKER BLDG. *Consulting Engineers* ROCHESTER, PA.

EQUIPMENT MANAGER

For large multi-plant Chicago company, using a big volume of heavy contractor's type equipment - to take full responsibility for all costs in the capacity of

EXECUTIVE MAINTENANCE ENGINEER

Position is charged with full responsibility for all matters pertaining to operation and maintenance of all equipment including large repair shops involving an annual expenditure of over $2,000,000. Applicant should have at least 5 years of previous similar experience.

Commensurate salary with exceptional retirement benefits.

P-5737—Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS

Civil Structural Hydraulic

Highways, Flood Control and Navigation, Industrial and Institutional Buildings, Sewage Treatment and Water Works. Design and Reports.

Other excellent opportunities in Mechanical and Electrical Engineering with Consulting Firm. Location Middle West.

Send resume of education and experience with salary requirements to:

P-5582, Engineering News-Record,
520 N. Michigan Ave., Chicago 11, Ill.

DEPUTY RESIDENT ENGINEER

For a $40 million rockfill and concrete dam in Iraq. Two-year contract; approximately 3-year completion schedule. Family housing at site, but no local educational facilities for children. Fill type dam construction experience required—preferably rockfill. Must be fully capable of assuming duties of Resident Engineer as required. Position is available immediately. Excellent salary. Please send complete personal and experience record to Hugo O. Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

WANTED Manufacturers' Representatives

An old well established eastern manufacturer of quality paints, enamels and varnishes wishes to expand its sales representation in several industrial areas in the eastern United States.
The agents we are looking for need not necessarily have sold paint, but should have had experience calling on operating men of large industrials, public utilities, railroads, etc., and should know how business for maintenance paints is placed.
Agents should be of high calibre, enjoy the confidence of their customers, and have a proven selling record. This will in no way affect our present sales organization as our salesmen know we are looking for new men. Write fully giving territory covered, details of your organization, experience, lines presently carried, etc.

REPLY BOX P-6002
ENGINEERING NEWS RECORD
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Structural Designers
Structural Draftsmen

HIGHWAY BRIDGE EXPERIENCE PREFERRED
ALSO RECENT GRADUATES

Highway Designers

SENIORS AND INTERMEDIATE

PERMANENT POSITION

BROWN & BLAUVELT
Consulting Engineers
44 COOPER ST., WOODBURY, NEW JERSEY

AREA ENGINEER
(CIVIL—HIGHWAYS)
FOREIGN EMPLOYMENT

U. S. Consultant requires services of broadly qualified highway engineer 15-25 years experience in design, maintenance and construction to join established group of American engineers engaged on an extensive highway program in a Near East Country. Living conditions good. Liberal salary and living allowances; transportation of family plus other attractive allowances and benefits. Send detailed personal record. Applicants' confidence will be respected.

P-5779—Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CIVIL ENGINEER

With prestressed concrete design experience wanted by growing company able to offer a real opportunity to the right man. Should be familiar with production methods and construction practices. Unusual opportunity. Open on age and salary. All replies confidential. Interviews will be held in your city. Please send us information about your education, experience and present salary. Write

P-5957, Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

EXPERIENCED HYDRAULICS ENGINEER WANTED

Graduate engineer experienced in paper mill hydraulics, planning and development of piping layout systems, etc. for large expanding and progressive mill in Maryland. Good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to
Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

ESTIMATOR WANTED

A large heavy works contractor operating nationally, with headquarters in Midwest, needs the services of competent estimator. Must be experienced, particularly in highway construction field, in taking off quantities and evaluating heavy grading, structures, paving and drainage. Position requires considerable travel. Adequate compensation plus profit sharing and pension benefits to qualified man.
P-5904—Engineering News-Record
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

POSITIONS VACANT
(Continued from page 151)

ofessional Land Surveyor—licensed, Bern County, New Jersey. Work with estabhed firm. Opportunity for partnership inrest. Prefer man with five or more years' perience in road or building field. P-6041, gineering News-Record.

aching in 2-year course at Technical Intute. Instructor wanted for Math and Scice. Salary range—$5062 to $6036. Also, structor wanted in Highway Technology to ch surveying, construction engineering d other subjects. Occupational experice a requirement. Write to; Richmond A. ung, Director Agricultural and Technical stitute, Randolph Center, Vermont.

anted Sales Engineer—America's leading anufacturer of metal building products, inding deck, wall and floor panels, windows d doors, seeks sales-minded engineers or uivalent experience in the construction ld. Men selected will be trained and sent t to do field promotional work with archicts and engineers before assignment to a gional sales office. Send resume to: Perinel Director, Fenestra Inc., 2250 East and Blvd., Detroit 11, Michigan.

cellent opportunity with small Engineering rm in Middle West for Graduate Engineer pable of doing Structural Design, with or thout experience. Send age, resume of ucation and experience, also references and lary expected, time available. P-6000, Engeering News-Record.

st. Asst. Mgr. for Bergen Co. Industrial ilders. Must be P.E. tops in estimating d, State salary, buss following. P-6010, gineering News-Record.

gineer—Estimator with field experience in avy and highway construction. Midwest cation. P-6009, Engineering News-Record.

EMPLOYMENT SERVICE

alaried personnel, $5,000-$30,000. This nfidential service, established 1929, is eared to needs of high grade men who seek change of connection under conditions asuring, if employed, full protection to present osition. Send name and address only for etails. Personal consultation invited. Jira hayer Jennings, Dept. L. P. O. Box 674, anchester, Vermont.

POSITIONS WANTED

ost Engineer—32, 5 years field experience fast multi-million chemical construction cluding electrical and piping controls. W-5794, Engineering News-Record.

enior Hydraulic Engineer available for ther U. S. or foreign assignment. Experince on river development projects—irrigaion—dams—drainage and flood control. W-5958, Engineering News-Record.

ighway Engineer, P.E., 25 yrs. excellent ighway and bridge experience with State nd private industry desires to make valuable ontribution to Highway Program for N. Y. rea Consultant. PW-5908, Engineering ews-Record.

Construction Superintendent, 34, college raduate, 12 years experience in all phases construction including engineering, purchasng and estimating. PW-5913, Engineering ews-Record.

Top executive of going western heavy engineering and bldg. const. firm seeks change for personal reasons. 42 yrs old, in charge of planning and const, wide experience. PW-5893, Engineering News-Record.

Superintendent sewer & water desires relocation. Prefer prominent work. 10 years experience. Available immediately. Can handle estimating. 620 E. 103 St., Brooklyn, New York.

General Supt. or Project Manager: age 33, Experience in all phases of Heavy Construction and Equipment including Highways, & Dams. Able to assist in estimating and bidding. Seeking permanent position with reliable concern. Resume & references upon request. PW-6042, Engineering News-Record.

Gunite man experienced in concrete repairs and pressure grouting. PW-5927, Engineering News-Record.

Sales Engineer-Estimator: available to cover entire southeast for material supplier or subcontractor. Age 37, 17 yrs. experience multimillion dollar industrial, commercial bldg. as supt. & estimator, presently employed. Minimum $10,000 plus travel. PW-6035, Engineering News-Record.

POSITIONS WANTED

Mech. Engr.—B.S.—35, 10 yrs. experience in all phases of mechanical construction—proven executive ability—desire permanent location western U.S.—teaching or plant maintenance considered. PW-6014, Engineering News-Record.

Sanitary Engineer, BSCE, M.S.C.E., 8 years experience in research, design, plan proportion and construction of municipal and engineering projects. Seek responsible position with industry, municipality or well established consulting firm in the Central States or South. PW-5935, Engineering News-Record.

Controller, Ch. Accountant, Office Manager, shirt sleeve worker, seeks tough, top office assignment. 23 years experience—11 overseas. Diversified heavy and medium construction. Fluent Spanish. Available now. A-1 references, character, potential and reliability. PW-5994, Engineering News-Record.

Bricklayer Foreman 27 years experience in industrial, commercial and residential construction. Preference, desire position in New Jersey area. PW-5998, Engineering News-Record.

POSITIONS WANTED

Junior Construction Executive—6 years sound experience estimating and project manager. All types building construction seek position with future advancement. PW-5995, Engineering News-Record.

Construction Profit Maker—estimate, purchase, expedite, handle owner contacts. PW-5997, Engineering News-Record.

Const. Supt—CE 9 years experience marine & heavy const. include bridge subst., breakwaters, docks, dredging, piledriving, estimating and costs. Resume on request. PW-5999, Engineering News-Record.

Avail. Nov. 1st. C.E., 10 yrs. exp. in design, testing & placement of soils, asphalt & concrete on airfields & hgwys. Wes Blank, Jr., RD-3 Box 212, Charlottesville, Va.

Canadian civil engineer with 7 years experience desired position in Europe with Consultant or Contractor. PW-6011, Engineering News-Record.

Construction Executive: Well versed in management of Estimating, Engineering and Construction. From Customer contact to completion of projects. (Mechanical Trades). Have following of Trained Personnel. Interested only in Profit Sharing Plan. If interested in man who can make you money, Reply to PW-6001, Engineering News-Record.

SEARCHLIGHT SECTION

(Classified Advertising)

BUSINESS OPPORTUNITIES — **EQUIPMENT USED or RESALE**

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The advertising rate is $23.60 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

$2.10 a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

Send NEW ADVERTISEMENTS or Inquiries to Class. Adv. Div. of Engineering News-Record, P. O. Box 12, N. Y. 36, N. Y. September 19th issue closes September 9th.

FOR SALE

General Contracting & Engineering Company

Located in Ottawa, Canada. Has enjoyed a high reputation in the industry for many years. Contracting firms interested in expansion would find purchase advantageous. Investment of not more than $300,000.00 required.

BO-5996, Engineering News Record

Class. Adv. Div., P. O. Box 12, New York 36, N. Y.

REPLIES (Box No.): Address to office nearest you
c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

SPECIAL SERVICE

Construction Estimating! Reliable architectural & structural work with accurate takeoffs on buildings with foundations. SS-5982, Engineering News-Record.

Steel and reinforced concrete detailing highway spans buildings for architects engineers fabricators. SS-6038, Engineering News-Record.

Concrete Forms Designed—Formwork designed for all types of heavy concrete construction. Includes bridges, buildings, culverts, etc. Complete set of form plans and list of materials furnished. For more information write: International Form Company, 3419 Buckeye Street, Toledo, Ohio.

CONTRACT WORK WANTED

Structural Engineering Firm. Personnel with extensive experience in bridge design. Reputable, licensed, now available, located upstate N. Y. CWW-5902, Engineering News-Record.

Engineers—Foremen—Office Men

Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.

GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
P.O. Box 921 Lake Worth, Florida

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty third year
Write today without obligation.
WILSON *Engineering Corp.*
College House Offices HARVARD SQ. CAMBRIDGE, MASS.

Contractors School

NAME .....
ADDRESS .....
CITY .....

Learn how to figure labor, material costs on construction jobs. Write for 30 day free trial. CONTRACTOR'S SCHOOL, Box 12, Dallas, Tex.

AGGREGATE BATCHING PLANT: 200 ton Bin, 1200 bbl. Cement Bin, Bucket Elevator, Cement Screw, 4 Beam Scale, etc.
BELT CONVEYOR: 60" x 170 ft., all mechanical parts and supporting structure, with 358 ft. 60" belt, 8 ply, 42 oz. duck, ¼" top cover, ⅛" bottom.
DRILLS: Ingersoll Rand and Gardner Denver Wagon Drills, late models, excellent condition. Bucyrus Erie 42T diesel and electric Blast Hole Drills. Also 29T diesel.
LOCOMOTIVES: Diesel Electric, standard gauge, one 25 ton and one 80 ton.
PUMPS: 2—5 stage, 450 H.P., submersible, capacity 3000 GPM @ 500' head. 2—150 H.P., 1000 GPM @ 500' head.
SHOVELS: Bucyrus Erie 54-B diesel Shovel and Dragline. One Bucyrus Erie 120-B and one 170-B electric. One Marion 151-M.
TRUCK CRANES: For steel erecting, 20 ton capacity. 1—Link Belt. 1—Bay City. With 80' booms, 15 ft. jib. 1—Lorain T20 Truck Crane with shovel equipment and backhoe.
CLAM SHELL BUCKET: Williams 1¼ yd. capacity, excellent condition.
JAW CRUSHERS: 10x15, 10x20, 12x24, 15x36, 18x36, 24x36, 25x40, 30x42, 40x42, 42x48.
GYRATORY & REDUCTION CRUSHERS: All sizes.
ROLL CRUSHERS: 2—18" x 42" Traylor.
BRIDGES, DECK GIRDER: 2—54' span. Also 2—65 ft. span. Drawings and photos available.
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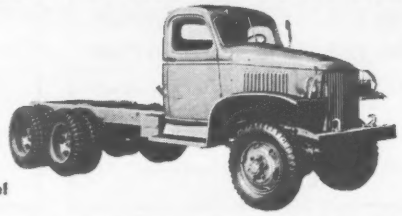

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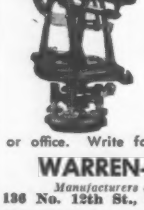

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The Engineer Shortage

QUESTIONS HAVE BEEN RAISED of late as to whether we have or have not an engineer shortage. A recently published book and a cutback in Defense Department contracts have stirred up some conjecture that (1) we may be reaching the end of an era of shortage, or (2) there may not have been a shortage at all.

The book in question is The Demand and Supply of Scientific Personnel, reviewed in ENR July 25, p. 66; it is a work of two authors for the National Bureau of Economic Research. The authors state quite flatly that "there is no evidence of a shortage of engineers." However, they base their dissenting opinion on a claim that engineers' salaries have not risen as much as they should if a shortage truly exists, and they use figures that were old when their book went to press to support this claim.

Among Defense Department contract cancellations, one in the spotlight was abandonment of the Navaho guided missile, which turned a North American Aviation plant into a recruiter's paradise until the few hundred engineering employees involved were relocated.

What we actually have been witnessing over the past few months has been a general slight slackening in the demand for engineers. Display advertising of engineering employment opportunities has fallen off somewhat in newspapers, and the U. S. Employment Service listing of engineer openings, which went from 4,000 in 1955 to around 6,300 in April, 1957, has dropped off since to less than 6,000. There are two basic reasons: Engineering graduates this year jumped by one-third, to 34,500 from 26,000 in 1956 (a 35,000-plus rate should now be sustained for four years). Secondly, the armed forces have reduced their take. An analysis of today's situation by McGraw-Hill's Department of Economics concludes that pressure for engineers is merely back where it was early in 1955, when most manpower specialists were proclaiming a shortage.

There are several important things for ENR readers to bear in mind in any discussion of engineer shortage: First, the construction industry is based primarily on civil engineering, and civil engineers have not at any recent time been so critically short as have been electronic, nucleonic, aeronautical, or other specialty groups of engineers. Secondly, the civil branch is so largely employed by various levels of government and nonmanufacturing firms that its salaries do not move as they would in a free market. They move, to be sure: ASCE's 1957 salary survey shows a healthy rise on the order of 15% (20% for beginners) since 1955. But the civil branch remains lowest of all, according to NSPE's Income and Salary Survey of 1956. Thirdly, it should be the concern of all that colleges report relative losses in both quality and quantity of enrolling C.E. students.

The point is: When our special report on engineering manpower took measure of the shortage last year (ENR Nov. 8, 1956, p.28) it may have been about at its peak; but construction was not found critically hurting. It may yet begin to hurt if the college-trained supply of good quality manpower is not kept coming.

American industry—construction included—still needs more engineers of all types. It probably will have to pay even higher salaries than it pays today to get them. In general, the prospect is for supply to come close to meeting demand. Whether this prospect is to hold for construction will depend on a further improvement in the salary position of the civil engineer.

New Seismic Data for Tower

AS TIME GOES ON, more and more light will be shed on the behavior of buildings during the July 28 earthquake in Mexico City. We have already received some new data. While these only revise figures reported previously for the 43 story Latino-Americana Tower, they nevertheless provide significant information for aseismic design.

The values given in ENR Aug. 15, p.44, for the relative deflections turn out to have been gage readings. These should have been adjusted by dividing by a constant, 4.77 + 2. Thus, the deflection of the 1st floor relative to the second actually was 0.25 in.; of the 25th relative to the 26th, 0.23 in.; and of the 39th relative to the 40th, 0.18 in.

A re-computation of shears has also revised values reported previously. The shear in metric tons corresponding to the above deflections are 500, 211 and 85 respectively. These values indicate that the building was indeed hit hard by the shock, for the order of magnitude of the base shear is about the same as that for which the structure was designed.

It is particularly noteworthy that the shears in the upper stories were considerably greater than those that would have been computed by using any of the earthquake design provisions in current building codes. However, the shears obtained from a dynamic analysis and used for the design of the tower were of the same order of magnitude as the observed shears. This experience should encourage greater use of dynamic analysis.

It is also worthwhile to note that the 1.54 sec period of the tower previously reported is for the second mode. The period for the fundamental frequency is 3.66 sec. In the July 28 temblor, the peak periods of the ground were about 1 and 1.8 sec.

Many thanks are due Adolfo Zeevaert, chief engineer on the construction of the tower, and Prof. N. M. Newmark, University of Illinois, for the corrected figures. By supplying the profession promptly with such useful data, they bring nearer the day when widespread building damage in earthquakes will no longer be feared. Their example is worth emulating.

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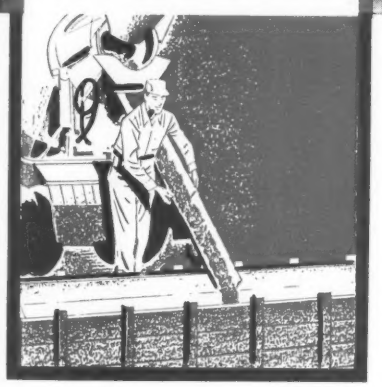

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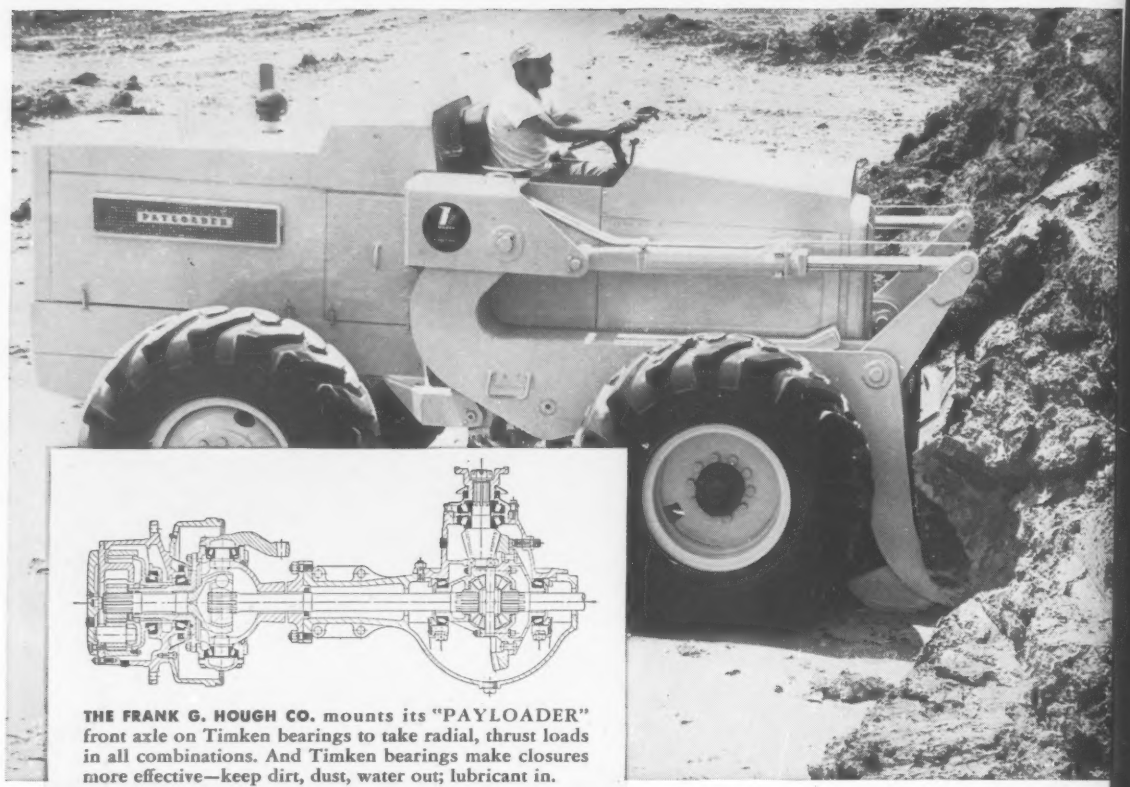

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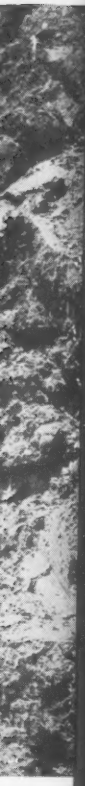

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